

ISSUE 38

Vol. 9, i

Midnite Software Gazette

The First Independent U.S. Magazine for users of Commodore brand computers.

Includes The PAPER

Books

BASIC TRAINING GUIDE standard-good overview
OUT OF THE INNER CIRCLE light..enjoyable

Educational

NIC'S FOUNDRY excellent value [for]
multiple users
FISH-ED friendly, simple...nicely done

Wordprocessors

PAPERCLIP II strong features...telecom
FONMASTER 128 good program, but wait 'til
the bugs are fixed.
PAGESETTER full-featured page layout.
POCKET WRITER II supports 1351 and 17x0.

Games

ULTIMA III a must for Ultima and
role-playing fanatics
MacBETH ...the graphics are well done.
subLOGIC SCENERY DISKS ...flatland
AMERICA'S CUP timely release...includes all
the elements

Disk Utilities

SUPERKIT 2.0 vast improvement...works with
2 drives
TIME-DOS date/time file stamping
DISK LIBRARIAN shareware catalog utility

Hardware

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DOUBLE QUICK BROWN BOX battery backed up
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Hints and Tips

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The
LONDON COMMODORE SHOW
London, England
November 1986

James A. Oldfield, Jr.

I lived a dream: In early November of '86, I travelled and toured England, the home of my ancestors. While I was there, I also chanced to stop by at the CBM sponsored **Commodore Show** in London. The trip was everything that I had hoped it would be, and quite a bit more beyond that. For four days, Robert Wolter (President of **Micro-PACE** and Publisher of the *Midnite*) and I saw the sights: London Bridge, Tower of London, Buckingham Palace, Picadilly Circus, and the quiet reverence of Stonehenge were unforgettable. I emphatically recommend UK tours.

Midnite Press had the pleasure of sharing a booth with our close friend and colleague, Juan Holz of **Horasoft**. The British market is definitely different from the U.S. market in a number of areas and it was quite an experience to sell our book to British and European users.

About 80% of the people attending were between the ages of 14 and 25, and about 90% of the titles were games. These titles, from the Prism Leisure Group, Elite, Alligata, and many other companies, have a shelf life measured in weeks. It is rare for these products to last for three or more months in the market.

Since most C64 owners consider their computer to be a game machine, most use cassette drives. According to many users, the fast load utilities for cassettes boost their speed to equal or better the normal speed of the 1541. And since few use their computer for applications, 60% to 80% use cassette drives exclusively. (All software developers that I spoke with use disk drives in house although the product is often shipped on cassette.) ICPUG (Independent Commodore Products Users Group) officers felt, however, that the majority of their members used disk

drives. All I know for certain is that cassette based programs outnumbered disk based programs 15 to 1 at the show.

I had the pleasure of talking at great length with Raeto West, author of *Programming the Commodore 64* and *Programming the CBM/PET*. After years of reading his work, I felt I was talking to a Commodore programming encyclopedia. A great guy.

Another gentleman that many *Midnite* readers and Lincoln College Computer Camp attendees might remember is Michael Todd. Mike is responsible for disseminating technical information for ICPUG.

ICPUG, by the way is the largest Commodore products users group outside of North America, and possibly in the world. As with many of the more local groups, ICPUG enjoys the recognition and notoriety that comes with supporting Commodore machines, and shares the common feelings of skepticism and disbelief at Commodore's marketing policies. I was lucky enough to speak at an ICPUG presentation where the majority of questions pertained to Commodore's introduction of, or failure to introduce, new products.

Amiga products are not selling nearly so briskly overseas as they are here. Britons have a very difficult time paying the price for an Amiga. The PC clone market is also taking its share away from Amiga sales as the Amstrad PC muscles its way into the market.

Many companies and consumers were from other European countries such as West Germany, France, Belgium, The Netherlands, Italy, and even the island of Malta. These countries have allowed CBM a large, even dominating, share of the computer market. In some European and Middle-Eastern countries, more than 80% of the computers sold are made by Commodore.

Many readers would find Britain's two largest Commodore-only magazines, *Commodore Computing International* and *Your Commodore*, that were exhibiting at the show quite informative. The ads that appear in them are GREAT. Another interesting feature of the British market is that most software is sold by specialty electronics stores. We had the chance to

shop at a few of these stores and immediately noticed the fierce competition in software pricing. Games that might, or do, sell for \$29.95 to \$39.95 in the United States sell for as little as L9.95, and some down to L2.50 (about six U.S. dollars).

The
WORLD OF COMMODORE SHOW
Toronto, Ontario
4 - 7 December 1986

Tim Sickbert

Jim Oldfield and I had the pleasure of hosting a booth - and hawking our book - at the **World of Commodore** earlier this month. One of the largest Commodore shows in North America, and certainly the largest in Canada, WoC is a premier forum for new products, last minute additions to the Christmas market, and a chance to get great deals on last year's hot titles.

Our booth might have been rather quiet had it not been directly across from the refreshment stand and co-hosted by Michael Konshak of **michaelsoft**. Although he tried diligently to push his *dfile* and *wordfile*, it seems that more people were interested in the Write Once - Read Mostly (WORM) optical disk drive that he helped design. This particular model, from **Optotech**, uses 5 1/4 inch removable disks which are held in a cartridge similar to the 3 1/2 inch micro-floppies used by the Amiga. One such cartridge holds some 400 Megabytes of data - 200 on each side of the floppy. If interested, the cartridges cost about \$100 when bought singly, and the optical disk drive runs about \$5000 for the first unit which includes controller board, software, etc. A second unit can run off the same card, and so is available for the ridiculously low price of \$2000. Unfortunately, the necessary drivers have not been developed to allow you to hook up the Optotech drive to your C64 or 128. It should work with the Amiga with the *Sidecar* attached.

Speaking of which, the Commodore-Amiga *Sidecar* and *GenLock* are now available in Canada, with dozens of units sold at the show. With the *Sidecar*, and also shipping separately as the *Enhancer* package, is AmigaDOS v1.2 U.S. release of the Sidecar is pending FCC approval, but *AmigaDOS* should be available immediately.

Commodore *PC-10 IIs* and *PC-20 IIs* were out in force, scattered around here and there throughout the show as well as at Commodore's pavilion. Even rumors, however, did not predict the presence of the *PC-40 II*, Commodore's AT clone. No sign, however, of the Commodore *900* Unix based system, nor European *128-Ds* (although they did appear at CES. See the report below).

Most of the new products were for the Amiga. Several music programs, financial packages, and higher-end databases were on show. Most interesting of these was a relational database that can display, and print, pictures with each record.

Finally, a REAL page-layout program is out for the Amiga: *PageSetter*, from **Gold Disk**. A good tool, see the review later in this issue. Brown-Wagh demonstrated their *Publisher* at center stage... but it is not yet available. Pity.

Unfortunately, few new products were released for the real workhorse machines, the *C64* and *C128*. **Berkeley Softworks** is the hottest game in town with the *GEOS* series. Almost six months old, *GEOS* is more than a flash in the pan, but most users will probably be disenchanted enough with it by mid-1987 that we won't have to endure it next Christmas. The new Commodore *1351* proportional (analog) Mouse (another Canadian release waiting FCC approval before hitting the States) is a nice piece. Along with the new mouse driver on the included disk, it makes working with *GEOS* much more tolerable.

The parallel printer interface wars seem to be winding down. The market is nearly saturated, the prices are falling, more Commodore-ready printers are being released, and, with the release of *Device One* from **Progressive Peripherals**, we have interfaces with more features than are practical. (It's loaded!)

The hard drive market is also developing in the Commodore market. At least five hard drives have been announced for the Commodore 64 and 128, with two or three that seem close to shipping. In **ConTrol (ICT)** was demonstrating their serial hard drive with built in floppy, and **Xetec** was showing several ***Lt. Kernals*** on both the C64 and C128.

Digital Solutions was demonstrating pre-release versions of ***Pocket Writer 2*** for both the C64 and C128. It looks like an excellent product - provided it will load. A representative at the show said that **Digital Solutions** was addressing the problem, but I will have to see it to believe it. Some of the minor additions include support of mouse for positioning the cursor and setting ranges, better super- and sub-scripts on screen, support of the 1700 and 1750 RAM expansions and multiple serial peripherals. A nice package, but there is probably no reason to trade in your current favorite.

These shows provide a whole new perspective on the Commodore market; watching the crowds helps discover what the users are interested in. But now, having been at the ***World of Commodore***, I wonder: Where now? What new products do Commodore users need? We have a number of excellent wordprocessors ranging from ***Speedscript*** through ***WordPro*** and ***Pocket Writer*** up to ***VizaWrite***. We have databases running from ***dfile*** through ***ProFile*** to ***Superbase***. There are more printers and interfaces than any man can keep track of. The Commodore 1670 modem provides 1200 baud communications at a reasonable price, and who can count the number of terminal programs in the market, not to mention the public domain. Games of all genre keep on coming - and will keep on coming for quite a while. The only areas that seem at all neglected are sound and graphics. And this is not for lack of expertise or even lack new products. There are many, many titles that support both SID chip and MIDI sound, and high resolution and multicolor graphics; a soft market in these areas keeps the visibility low. And so, again: Where now?

I believe that the development of new products, radically new approaches, and new expansions of the technology are just now past the peak. The Commodore 64 will not make the coffee in the morning AND order more from the grocer's when you happen to be out. You will still have to take windex and squeegee in hand to get your windows done no matter what new 6502 algorithm you come up with. What is a computer supposed to do, anyway? I bet that somewhere, someone has a program for any reasonable application you can think of.

No, the major new developments will mostly be in the newer computers. They ARE faster, they ARE bigger, and they are more glamorous. What's more, the people that have these newer computers are more likely to have \$100 to \$1000 to spend for a neat new program, printer, disk drive, or interface. So that's where the development, and advertising, and editorial money is going. Let 'em.

For the Commodore market is not dead. No other computer has a larger user base. No other computer can do so much for so little. And few computers are so well understood.

I recently wrote a book on an MS-DOS based Commodore ***PC-10***. I used MS-DOS because I believed that it offered better support for our new laser printer. HA!! I have since found that I have better, finer control over the printer using a C128 using a \$89 dollar wordprocessor than I do using the PC-10 with a \$500 word processor. It seems that the MS-DOS word processor, and the machine, try to do too much for me. I know what I am doing, but the MS-DOS systems assume that I do not. I'll keep my C128.

The Commodore systems are excellent machines. (We really don't have to say anything about the *company*, do we?) Unless you really need megabytes of RAM, can keep a multi-megahertz clock speed busy, or must have compatibility, there is no need to go beyond the C128 or C64. There are too many users, too many machines, too many nickels and dimes to be made in the 8-bit Commodore market for the software

support to disappear overnight. We probably won't see the 8-bit Commodores new on the shelf two or three years down the line; they won't disappear, either. The software and experienced users to support the **C64** and **C128** will be around for years after the the folks in West Chester start saying, "A Commodore sixty-what?"

And, it looks like the **Midnite** has found a niche. Let everybody play with their new toys - We have good, working machines. As long as the C64 and C128 are here - and for a long time after - we will support them. We wish to continue our tradition of shared support; we need your input. There are still more tricks and tips, more information, and still many, many new products coming out.

CONSUMER ELECTRONICS SHOW *Brief Report*

The January *Consumer Electronics Show* is now history. Reports are a little bit sketchy as we go to press, but it seems that Commodore's presentation was a success. The text from a one of their press releases is reprinted below. For those of you have been working with and watching Commodore over the years, it might seem more than just a little bit deep.

Commodore did not announce anything revolutionary. I am a little surprised, however, that they did announce the U.S. release of the **C128D**. This variation of the **C128** has been marketed in Europe for some time. The **C128D** is functionally identical to the **C128**, differing primarily in aesthetics. The CPU, a 1571-compatible disk drive, and power supply are built together in an Amiga-type box, with a keyboard connected by a two foot cord. I would like to see these machines on the shelf (and one in my office), but I won't *really* believe that it is coming until I see one at a local store.

For the **C64**, Commodore says that the **1764** RAM (with a RAMdisk driver and a GEOS RAMdisk driver) expansion cartridge is on the way. The **1351** dual mode (joystick and proportional) Mouse is already out (see

review under hardware), and the **1581** 3.5" disk drive is still in the works. I hope that Commodore does a good job with this new drive. It will, indeed, be a specialty product that is not likely to last long on the market, but I intend to get a couple of them fairly quickly. With an unformatted capacity of 880K (a formatted capacity reported anywhere from 740K to 808K) and the promise of a faster serial transmission rate, the **1581** will be a very nice supplement to a standard system.

Commodore also re-announced the release of their two MS-DOS machines, although the names seem to be a bit uncertain. The lower end configuration (**PC10-I** or **PC-10 II**, depending on who you talk to, and when) offers 512 Kbytes of RAM and a single 360 K floppy drive for a suggested retail price of \$999. The next machine up the scale (**PC10-II** or **PC-20 II**, depending...) provides 640Kbytes of RAM and two 360 K floppy drives for a suggested price of \$1199.

Both both units offer standard RS232 serial and Centronics type parallel ports; and ATI graphics solutions adaptor (a built-in in monochrome and color display card compatible with IBM, CGA, MDA, Hercules and Planatronics video modes); 8088 running at 4.77 MHz; MS-DOS 3.2; XT compatible BIOS; XT compatible keyboard; GW BASIC 3.2; and five full size slots. The power supply can support two floppies, a 40MB hard, and 5 expansion cards, and the chassis supports a half-height or full-height hard disk.

Although Commodore made no new announcements about the Amiga, there were rumors that they was privately showing prototypes of the **Amiga 500** and the **Amiga 2000**. Commodore watchers speculate that the **Amiga 500** will not be expandable or have a built-in drive, and that the **Amiga 2000** will have more RAM, may have MS-DOS compatibility and/or an MS-DOS compatible bus built-in, and will likely stick with the 68000, as opposed to a 68010, '020, or '030, chip. *GenLock*, *SideCar*, and AmigaDOS 1.2 (*Enhancer*) are already done, although none of these are widely available in the states at this time.

Jack Tramiel seems to be doing what he does so well, namely making reasonable machines at an incredibly low price. New versions of the *ST* series seem to be in the works, providing more RAM (ranging from 2Mb to 4 Mb); and, hopefully, a blitter chip and some way to provide MS-DOS compatibility. Atari also announced their own MS-DOS machine - a simple box with the basic chips; any special cards will require the use of an accessory expansion box.

The only other real news seems to be that IBM is dropping the *PC* at the same time as the IEEE is adopting it as a standard, and the only people that seem terribly interested in Apples new *IIgs* are Apple users.

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thousands of Commodore user groups through the world and BECAUSE 1987 will be Commodore's most exciting year yet and BECAUSE Commodore is right for you. Right now.

[Transcribed by Deb Christiansen, SYSOP on Delphi and GENie.]

BOOKS

BASIC TRAINING GUIDE: \$16.95 BASIC 7.0 tutorial book by Frank Kampow. From Abacus/Data Becker. 295 pp., optional disk available.

This is another standard entry into the basic BASIC how-to books. As with most of them, it is at least adequate, but offers nothing to set it above the scores of others - except that this one does, indeed, focus on BASIC 7.0. Some other BASIC 7.0 tutorials revert to PEEK and POKE for graphics and sound, and to BASIC 2.0 disk commands. This one is at least consistent to BASIC 7.0. No topic is covered in any depth, but it does provide a good overview. AVERAGE. Tim

OUT OF THE INNER CIRCLE: A Hacker's Guide to Computer Security: \$9.95 prose book by Bill Landreth with Howard Rheingold. 1985, MicroSoft Press. 230pp.

This respectable piece of prose describes a not-so-respectable pastime - computer hacking. It provides an interesting view of the underground without the risk of doing it. The book is well written, with an overview of most security systems, and detail of the simpler ones. *Out of the Inner Circle* is targeted more toward the computer sysop or administrator, stressing simple methods of how to increase computer security, than it is toward a hopeful hacker. It is fairly light, enjoyable reading. AVERAGE. Tim

EDUCATION

NIC'S FOUNDRY: \$19.95 (+\$3 postage and handling) educational simulation in economics management game on disk by Nicole G. Spinks. From Donroy Enterprises. Not protected, 1 year media warranty!

This is a nice balanced program that picks up where *Lemonade Stand* leaves off. The bank loans you \$100,000 - on which you must make weekly payments - to start up the factory. Using the \$10,000 you have left after buying the building and machines, you must buy three different parts that are used in various combinations to make three different products using three different machines. You must hire and allocate workers to each machine to meet your demand, and face such realistic problems as pilfering and machine failure.

This is an educational simulation, but it is also a game that can keep students of any age busy for several hours. The save game feature would allow a foundry to run over several days or weeks.

The actual game is compiled, but a demonstration program included on the disk is a good example of well written BASIC programming.

While I would not buy this program for one user (it might get old too quickly to justify the price), it is an excellent value for three or more users, and especially for junior- and senior high schools. HIGHLY RECOMMENDED. Tim

FISH-ED: \$29.95 educational game on disk for the C64, from Buchanan Software.

FISH-ED provides four learning games - Alphabet Practice, Spelling, Number Concepts, and Math - targetted at children between kindergarten and sixth grade levels, with classroom and home testing

within these age groups. I would tend to think it is better suited for the younger players within this range.

User friendliness, simple directions, and the capability for creating unlimited math and spelling libraries contribute to *Fish-Ed's* suitability for both home and school use. You can switch from one game to another, review or create new libraries, peek at the solution to a problem, correct mistakes, change play speed, or start over at any time.

Game play can be controlled with either the keyboard or joystick. I would strongly recommend using a joystick, since keyboard controls are difficult. Sound and high resolution animation help keep the child's interest.

Four levels of game play speed are provided, although there is no time limit for game completion. My son complained that the fastest speed was difficult to control reasonably well, but lower speeds provided a good selection range. The Spelling and Math games each provide six libraries and the option for creating new libraries. New libraries can be saved on the program disk.

All four games use the same basic screen, making it easier to switch back and forth between games. Each game uses a swimming fish that the player controls to catch and move the desired letters or baby fish. Whatever is caught is moved to the bins at the bottom of the screen to complete the required task. But watch out for the fisherman as he drags his net across the screen.

The Alphabet game displays a random scattering of letters that must be gathered and placed in proper order at the bottom of the screen. The Spelling game is similar, but you need to gather only the correct letters to spell the word that is briefly displayed at the start of the game.

The object of Number Concepts is to solve simple addition or subtraction problems by filling the answer bin with the right number of baby fish. You can even move baby fish into and out of the equation bins, with the numeric problem

automatically changing to reflect the number of baby fish in each bin. The Math Game is similar, but you can only fill the answer bin at the bottom of the screen to solve the displayed problem.

The Spelling and Math Games allow using library files provided or building your own. Suggestions indicate ways to reinforce homework or customize problems for lower or higher levels of difficulty. The Scoreboard displayed after each problem has been completed indicates the number of errors and the number of times you peeked at the answer.

Fish-Ed is very nicely done, with good documentation, and especially easy for young players to understand. Correct answers are always rewarded with special sounds and graphics. Mistakes are never punished and there is no time limit for any game. [RECOMMENDED? ed.] Robert Baker.

APPLICATIONS

PAPERCLIP II: \$79.95 word processor with telecommunications program on disk for the C128. By Steven Douglas, from **Batteries Included**. Dongle protected. Disclaimer of warranty.

At long last, I have a **PAPERCLIP** and can see why there are so many people using it and why they stick with it. **PAPERCLIP II** is very similar to **WordPro**, which I have talked about too much already. Its strong features are in wide document editing, column manipulations (including numeric tabs, moving columns, sort, etc.), multilingual character sets, marking locations within text, and very strong printer support. The spelling checker is slow - although a 1750 RAM expansion is supposed to make it faster - and it does not offer all the output features that others do (double column, etc.).

The telecommunications program is more than adequate for general use. It supports 300 through 1200 baud; I could not test

the claim that it supports 9600 baud. **PAPERCLIP II** supports all Commodore 16xx; Mighty Moe; HesModem II; Hayes and other RS232C modems; Punter Cl, Xmodem, and CRC.

Other features that become more useful as time goes on are the abilities to work with either screen code (PRG) files or PETSCII (SEQ) files and to remove extraneous carriage returns that come with buffered text and print-to-disk files.

PAPERCLIP II is an excellent word-processor that will be THE best for some and very good for others, depending on specific need. Unless you need stronger control over output (double column, etc.), or the simplicity and WYSIWYG of something like Pocket Writer, **PAPERCLIP II** is HIGHLY RECOMMENDED. Tim.

FONMASTER 128: \$59.95 wordprocessing program on disk, plus font disk. By Marty Flickinger, from **Xetec**. Cassette port dongle protected, 90 day media warranty. Quality graphics printer recommended.

This fine tool came out about one week too early. The program itself seems to work beautifully - the fonts, the formatting commands, including graphics with the text output, etc. I did not try the more complex file merge functions. **FONMASTER 128** is very impressive.

But there are SOOO many nit-picky little irritations that I almost could not review it. First, and the biggest problem, is that even without DOS protection, the you almost **have** to have the original disk in order to load the program. There is no way to simply LOAD **FONMASTER 128**; you must use the BOOT command that runs the program on Track 1 Sector 0. In fact, all the utilities (setup editor, graphics converter, font editor, etc.) go back through the Track 1 Sector 0 BOOT, again requiring the original disk. Incidentally, this will make it virtually impossible to use **FONMASTER 128** on the **Xetec/F.I. Lt. Kernel** hard drive. And, it is difficult to copy those sectors from the original single-sided disk to a double-sided disk. So, you must either copy all the blocks

allocated in the BAM, nibble the disk, or use the original. Argh!

Once you do get a copy, you will notice that the default colors in both the 'setup' files are pretty poor. No big deal, but a bit of a hassle - more so when you don't want to save anything to the original disk, but must use it to load.

The 'demo' file which comes on the font disk requires a file from the program disk. This would be no problem if you had copied everything to a double-sided disk in the first place, but again...

Trying to print the 'demo format' file returns an "unknown format command."

Yes, I know that this is all nit-picky stuff. The program does work, and seems to work well. But it makes angry to see a good programmer working for a good company push something out into the market about five days before it is ready.

A service man at Xetec suggested that I allocate blocks 0 and 1 on a double sided disk, copy all the files from the original disks, and use a sector editor to copy the boot sectors. When asked about upgrade policies, he said that registered owners would be notified by mail.

It should take Mr. Fleckinger a good week to ten days to change the few problems evident in the original release. As soon as he does so, and they get it out onto the shelves, I will rave. Until then - especially without an announced free trade in - wait. NOT RECOMMENDED Tim

PAGESETER: \$149.95 page layout software on disk for the Amiga, from **Gold Disk**. Not protected.

PAGESETER is the first real page layout type software that I have had a chance to play with (other than **GEOS**, which really doesn't count). It is promising.

The premise of page layout software is that you will be able to see on the screen almost exactly what you will get on paper, including multiple font, proportionally spaced text, and graphics. It works.

PAGESETER allows you to enter and edit text, create and edit graphics, and to

place text and graphics into "boxes" that you create on a virtual page. Once you have done this, you can move; resize; link; and set font style, size, and enhancements; spacing, leading, and borders of the box. The program allows you to view pages one at a time in any of three magnifications. The lowest power shows a totally unreadable full page that will show you the general appearance; the middle power will show you a sizable part of the page, still unreadable, but enough to give a good idea of what that part of the page contains; and the highest power will show, in medium resolution, almost dot for dot, will be printed.

To make accurate layout possible, grids, lines, rulers, and absolute and relative coordinates can be turned on and off. And, although adequate text and graphic editors are included in the package, **PAGESETTER** will import text from **TEXTCRAFT**, **SCRIBBLE**, and generic ASCII files; and IFF format graphics (black/white and grey scale graphics are highly recommended). Any Workbench supported fonts can be used in a document, and the program will print to any printer supported in Preferences.

The program is not, however, perfect. Most notably, the print option does not work correctly on some printers. A separate utility, Pageprint, is supplied on the disk as a work-around. After working with **GEOS** for so long, **PAGESETTER** seems incredibly quick ... but it is still too slow to use for the magazine. The printing, especially, is very time consuming. Further, I am still not able to get full resolution from our **Quadram** laser printer, and so am a bit disappointed in standard dot matrix resolution.

In sum, **PAGESETTER** is a very nice package that needs little more debugging, and it does a very respectable job of what it is supposed to do. And, it is the only one I have been able to get my hands on that does it at all. **RECOMMENDED.** Tim

POCKET WRITER II: \$59.95 wordprocessor on disk for the C64 and C128 in both modes, from **Digital Solutions**. Compatible with other **Digital Solutions** titles. DOS protected. Joystick, 1350, or 1351 mouse optional; 17xx RAM expansion optional.

This new version of the best selling Commodore wordprocessor offers support for joystick and the new Commodore 1351 mouse, the 1700 and 1750 RAM expansions as RAM disk, better support for serially interfaced peripherals, and a built in 80-column (fast mode) spelling checker. And that's about it. There are no new features, such as double column or margin offsets, for formatting text, and still no dictionary for the spelling checker to use. **POCKET WRITER II** loads only a little bit more easily than earlier versions.

Unless you have, and feel compelled to use, a 17xx RAM expansion and/or a 1351 mouse, or would make very good use of the built in spell-checker, I see little reason for anybody to buy **POCKET WRITER II**. If you don't have a word processor yet, and anticipate getting the special peripherals, this might be a good investment. If you are a registered **PAPERBACK/POCKET WRITER** owner, send in to Digital Solutions for an upgrade (about \$20). Otherwise, **AVERAGE.** Tim

THINKING CAP: \$49.95 outline processor on disk for the Commodore 64. From **Broderbund Software**.

Thinking Cap is one of the finest, most useful new titles of 1985. This genre of product is often called a *thought processor* and, while I don't totally agree with it, I can see why that label is used. **Thinking Cap** is a flexible frame that allows you to create and work with a coherent outline more easily than you could with a word processor or by hand.

The program uses a combination of menus, prompts, and command keys to allow you to create, collapse, expand, and edit an outline. **Thinking Cap** provides two modes of viewing the outline. The first, **Overview**, allows you to see zero to seven

levels deep. This is useful for seeing the structure and contents of your outline. A cursor bar indicates your position within the Overview, from which you can move directly to the Enter/Edit mode.

Within Overview, all entries subordinate to that on which the cursor bar is currently placed will be highlighted. Thus, if the cursor bar is on the title, the entire outline will be highlighted, and, if the cursor is on an entry in the seventh level, only that entry will be highlighted. The Overview mode also allows you to select the number of levels that will be shown, from zero to seven. Showing only the highest levels makes it easy to see the overall structure of the outline.

The Entry/Edit mode shows only the current and subordinate entries of the outline, and allows you to make further subordinate entries. For example, working within the third tertiary topic of the second secondary topic of the first primary topic, the screen will show the title of the outline, a "1" to indicate the first primary topic, a "2" to indicate the second secondary topic, a "3" to indicate the third tertiary topic, and the quaternary topics you have made under the third tertiary topic. You may now enter more quaternary topics or select one of the quaternary topics and move to the next level to make the quinternary entries.

Entries are fairly easy to edit, and may hold about 150 characters each. Only 20 to 35 characters will be displayed on the screen depending on the level and the length of the words, but the full entry will be printed.

The program uses keystroke commands for most entry, editing, and movement between levels; a context sensitive help menu smoothly scrolls up when the <LOGO> key is pressed if you need help. The <CONTROL> key brings forward a command menu for printing, disk commands, customizing the program, etc.

Thinking Cap supports devices 8 and 9 for data, but will not work with a 1571 drive in double sided mode.

Thinking Cap allows you to "merge" two separate outlines into one. This is not a

true merge, however, in that it does not insert one outline into another. Rather, it simply appends one existing outline from the disk onto the end of another outline in memory. This is not very useful because it does not renumber. Thus you end up with the first outline with primary topics starting with number one, and then the second outline which has been appended has primary topics starting at number one. There is no way to renumber and fully integrate the two merged outlines.

Thinking Cap allows you to save a section of the outline to disk. This section can then be loaded into the same or another outline. It also allows a section to be cut from the current position within the outline and then inserted into another position or another level. This is a little bit clumsy and a little bit tricky, but could be useful once you get used to it. A nice feature, but not beautifully implemented.

Thinking Cap supports standard Commodore and Epson printers, and allows the user to modify some of the codes that will be sent for accessing printer features. *Thinking Cap* will print the outline in a number of standard forms (Roman, Numeric, Technical, and Prose) and provides several options for the enhancement that will be used for each level, including wide, enhanced, bold, and underlined - where available.

I have not seen a similar product for the C64 - but I am glad I found this one. If you need an outline processor, this one is very good - and much easier to use than it is to describe. RECOMMENDED. Tim

LABEL PRO 4.0: \$5 shareware labeling utility on disk by **Steve Boal**. Not protected.

Generally, I am in favor of users writing their own simple utilities and, on the surface, this is a very simple utility to print out multiple copies of mailing labels with the same data. Beyond that, however, it is a good example of using portable extensions to BASIC; in this

case, Ronald Carnell's *Window Wizard* (*Compute!'s Gazette*, Sept. 86, p. 62). In addition to the windows, *Label Pro 4.0* supports multiple downloaded fonts using the *Xetec SuperGraphix* interface and downloaded font images. If you are interested in using windows, Carnell's utility is a good choice, and I suggest you look at this example of how to use it. Otherwise, AVERAGE. Tim

GEOS

GEOS (Graphics Environment Operating System) is, as its name implies, a graphics oriented operating system for the C64 and 1541 disk drive. *GEOS* features an interactive windowing environment controlled with joystick, mouse, sketchpad, or lightpen; and a disk-based program and data manipulation system which allows program overlays and partial data loads.

GEOS is hot. It was announced about a year ago with more than just a little bit of hype and hoopla from the major glossies. Since its official release last summer, it has sold well as a stand alone package and is now bundled with the Commodore 64C in the U.S., and with both the 64C and with the C128 in Canada.

Third parties have recognized the money to be made on such a popular product and have begun to support *GEOS*. *Abacus* and *Midnite* have published books (*GEOS Inside and Out*, and *How to Get the Most Out of GEOS*, respectively). Software vendors have begun to make provisions for importing text from the *GEOS* format files.

GEOS is impressive. The operating system stretches the computer and the disk drive to their limits. Had *GEOS* come out three years ago, the computer industry would have been astounded. *GEOS* does, indeed, make the Commodore 64 look and act something like the 680x0 based *MacIntosh*, *Atari ST*, and *Amiga*. And, *GEOS 1.2* - currently the most popular version, has fewer bugs than many major wordprocessors, spreadsheets, and databases. The people at

Berkeley know how to write code.

GEOS also reflects a programming philosophy brought down from larger, more sophisticated computers. It tries to do as much as it possibly can for the user. This has many advantages, especially for the new user. It also has many disadvantages. The programs become memory hungry, slow, and restrictive. *GEOS* proves what I have learned in my experience with computers: If you are going to use a computer, expect to spend much money, much time, or much of both. To get anything done with *GEOS*, expect to spend much of both, and do not expect to ever get complete control over the program's output.

GEOS does provide what is probably the best, simplest, fastest, and most accurate way to create an attractive page with graphics and a variety of text fonts. *geoPaint* is a respectable high resolution graphics program; *geoWrite* is a unique multi-font WYSIWYG wordprocessor. But is it very useful? To some users, yes; to most users, maybe.

I wrote the book, *How to Get the Most Out of GEOS*. Since I finished the book in early November, I have booted *GEOS* maybe a dozen times. I simply have little need to create low to moderate quality text and graphics, and do not have the time to play with it.

In time, as users see through the hype and recognize *GEOS* for what it is, it will become an adjunct, a popular and useful addition to software libraries, much like *PrintShop*, provided that prices come down.

So far, no third parties have provided the competition to bring prices of *GEOS* compatible software down. The prices of supplementary packages available from *Berkeley Softworks* are high, and have been supported by the heat of the market, but this will not last too long.

The following reviews, as well as the this editorial, reflect my disenchantment with *GEOS* and *Berkeley Softworks*. The programmers at Berkeley have done, and continue to do, a marvelous job. And, if quality is to be judged by sales, the marketers of *GEOS* have done an absolutely incredible job. But, I feel that *GEOS* and

its supplementary programs do not justify the credit given them or the price charged for them. For a broader, generally quite honest, perspective and current information, I recommend you to the users of the GEOS Forum on Quantum Link. Tim

Each of the programs reviewed below include, in addition to the specific programs reviewed: **deskTop 1.3** which is marginally faster than the original, displays the name of the selected printer driver, and allows limited keyboard control for selection of the option; input drivers for the Commodore **1351 Mouse**, Koala Technologies **Koala Pad**, and Inkwell Systems **Flexidraw** light pen; and, numerous additional or modified printer drivers.

A second generation level of protection has been reported in **deskTop 1.3**, by which the operating system checks for the existence of "system boot files" on work disks and, if present, erases them.

WRITERS' WORKSHOP: \$49.95 word processing program on disk for use with the GEOS operating system on the C64. From Berkeley Softworks.

This supplement to **GEOS 1.2** features **geoWrite 2.0**, a wordprocessor which offers more features for finer control of the text. Specifically, the original **geoWrite** provided for a change of margins only at the beginning of each page, and all text was left justified/ragged right. **geowrite 2.0** allows for a change of margins; tabs; left-, right-, and full-justification; centering; and single-, one and one-half -, or double-spacing for each paragraph. It also allows for a number of keystroke, as opposed to pointer selected, commands and supports **geoDex**.

This finer control is especially useful for manipulating graphics. The original **geoWrite** forced all Text Scraps to be centered between the left and right margins. **geoWrite 2.0** does the same, but

because you can change the margins at will...

geoWrite 2.0 eats more memory and sacrifices speed. Because each paragraph can have a change in margins, tabs, etc., a simple carriage return requires somewhere around twenty characters.

Writers' Workshop is a definite improvement as far as control over the text goes, but because the sacrifice in speed, its price, and reported bugs it is not so much a step forward as a step sideways. AVERAGE?. Tim

DESKPAK: \$34.95 collection of programs on disk for use with the **GEOS** operating system on the C64. From **Berkeley Softworks**.

This supplement features an Art Grabber, a Calendar and a Blackjack game (desk accessories). The Art Grabber is a nice tool for importing **PrintShop**, **PrintMaster**, and **NewsRoom** graphics. The Blackjack confirmed the wisdom of my decision not to go to the Consumer Electronics Show (CES) in Las Vegas; the Calendar made me thankful for paper versions. A neat, overpriced, toy. AVERAGE. Tim

FONTPACK1: \$29.99 collection of fonts on disk for use with the **GEOS** operating system on the C64. From **Berkeley Softworks**.

This supplement provides twenty additional fonts for use within **geoWrite** and **geoPaint**. Some are useful, some are attractive, and some are cute. Most of them look reasonable on a quality 80 dot per inch printer with a new ribbon. **FONTPACK1** does not alter **GEOS's** inherent eight font limit. AVERAGE. Tim

GAMES

EXODUS: ULTIMA III: \$59.95 fantasy/role playing game on disk for Amiga. from Electronic Arts.

EXODUS: ULTIMA III is the third chapter in the *Ultima* series, one of the most popular role playing games available. Written and published by Lord British, *Ultima* is available in the U.S. from Electronic Arts. Unlike *Ultima* and *Ultima II*, you are not alone in this adventure! **ULTIMA III** allows you to create a party of up to four members, each with a different profession and talents.

There's no travel through space this time; all of the action takes place on the world of Sosaria. Peace has reigned for 20 years, ever since you crushed Mondain and Minax in *Ultima I* and *II*. Now, however, an island with of 26 different monsters has been created under the ocean. After putting your band of adventurers together, you will make your way to the nearest town to arm them from a selection of 16 weapons types and 8 armor types. You'll find magic weapons, armor, other enchanted items, and treasure chests that will fill your coffers. There are 32 magic spells, a new combat mode, ship-to-ship combat and navigational strategies. Special gems, once found, will aid you in mapping and understanding Sosaria.

Play on the 512k Amiga is smoother and faster than on the C64, the graphics are outstanding, and the package includes a beautiful fabric map of Sosaria, two elaborately illustrated spell booklets, and a detailed "Book of Play" with a comprehensive history of the *Ultimas*. This is a must for the *Ultima* fanatic or anyone who enjoys a well-done fantasy/role playing game. RECOMMENDED. -Art Lewis Kimball

MACBETH: \$24.95 adventure game on disk for C64 from Avalon Hill.

MACBETH is a difficult game to review since any criticism of the game might be misconstrued as a criticism of the Bard; an undertaking for which this reviewer is not yet ready.

The game is TOO dependent on the original drama. Rather than an adventure game BASED on the work of Shakespeare, the entire game is a faithful recreation of the play, and every action taken must follow the script. One cannot just "kill MacDonwald;" one must "unseam MacDonwald with the axe."

The two disk package is accompanied by a book containing the original text and a modern prose translation of the story. Without a copy of the original text, there is NO WAY this game can be completed.

The game is divided into four separate games. Part I encompasses scenes 1 through 4; Part II, scenes 5 through 11; Part III, scenes 12 through 20; and Part IV, scenes 21 through 31.

Instead of an enjoyable adventure game, this quickly becomes an irritating exercise in detail. There is a 'help' feature, but this, too, is irritating, since the clues are fairly obscure riddles.

This would be a great way for a dedicated student to learn the play forward and backward, but as a game it falls far short of the mark. To add to the irritation, there is no save feature.

The graphics are well done and interesting, but this is about the only kind comment I can make about the package. NOT RECOMMENDED. -Art Lewis Kimball

subLOGIC SCENERY DISKS and **STAR DISKS:** slightly under \$20 disk with documentation and maps for use with subLOGIC *Flight Simulator* and *Jet* on the Commodore 64.

1. *Flight Simulator II*

This is not a review of *FS II*, but since the *Scenery* and *Star* disks are designed to work with the program (or with *JET*), comments on it are worthwhile.

The joy of *FS II* is its realism: it simulates the flight of a real plane, uses real instruments, and flies over real territory. Thus you can plan a flight from New York to Boston or, on the *Scenery* disk, Los Angeles to San Francisco or Tokyo to Osaka. A Midnite reader might choose to take off from Chicago at midnight, with clouds and crosswinds in place, and fly to Champaign in the dark using only instruments.

There's a limit to realism, of course. You can't feel the plane's motion, or hear the sound of air flowing past the cockpit cowling. On the 64, the horizontal resolution is limited (because of multi-color graphics) and screen refresh is typically two or three times per second. This makes it hard to line up precisely with a runway since you can't see good detail until you're very close.

And there's fun in irresponsible flying. Can you make it between the two towers of the World Trade Center in New York? How close can you pass to the John Hancock building in Chicago? Can you fly along the Manhattan bridge without hitting a cable or crossbar?

A whole generation of computer barnstormers have been awaiting these scenery disks, looking for new countryside to terrorize.

2. The *Scenery* disks

Scenery disks have been released to cover the western United States; it will take twelve disks to cover the entire country, and six are available so far.

The bad news: the scenery is flatland - there are no monuments, buildings, or bridges (you will get them on the *Star* disks, reviewed later). The airports are only runways with no taxiways or fuel stations, and no instrument landing systems (ILS) are provided.

For what it's worth, each disk does cover a huge geographic area, with many airports and navigational stations. Coastlines, rivers, and some highways are well detailed, considering the area involved.

An oddity: if you leave a local scenery area, you will be transferred to a general

map of the USA. Thus, no matter which scenery disk area you have, you can readily call up the coordinates for Miami or Detroit and fly around recognizable scenic areas. There will be no airports or navigational aids but you can follow coastlines, lakes, or major highways. (No fuel, either, but tapping the <S> key will fix that).

Although the detail in these disks is impressive, it's hard to see what the average flying hacker (flacker?) will get out of them other than general familiarization of terrain and navigational aids.

3. The *Star* Disks

Star disks contain more detail over a smaller geographic area. I have examined the San Francisco and Japan disks.

The good news: lots of objects such as buildings, bridges, towers, and monuments. Flying around Mount Fuji can be an awesome experience (it's LARGE). More good news: if you like practising instrument landings (ILS), plenty of them are provided on each disk. In fact, the Japanese documentation contains numerous approach charts.

The disappointment: for 64 users, the wealth of detail starts to slow down the screen display. When flying over downtown San Francisco or Tokyo, there can be a delay of several seconds before the screen changes to the next picture. You feel immobilized by this "stop action" type of motion, and using the controls becomes next to impossible since you won't see any affect until considerable time has gone by. The solution: switch to radar until you're past these cluttered areas.

Daredevils will be disappointed to find that they can't fly under the Golden Gate Bridge in San Francisco. For some reason, the bridge roadway is set to sea level (the supporting towers go underwater). Any attempt to fly underneath will result in a splash. But there's a consolation prize: you can (and undoubtedly will) fly under the Oakland Bay Bridge.

4. A comment on *JET*

Yes, *JET* works with these scenery disks, although I've had trouble getting

it to start up in some parts of the San Francisco scenery area. And I must confess that I often get lost when using *JET* ... there are no navigational aids, and a wrong turn can put you in totally foreign territory. Especially in Japan.

5. An *Amiga* preview

There has been a dealer demonstrator disk released, and it looks good. The *Flight Simulator*, if the demo disk is any indication, will contain both propellor and jet planes (it's sometimes handy to be able to switch planes in mid-air). Screen resolution and refresh rates are much better than on the 64, and new ways are available to view your flight (from the control tower or from a "spot" plane). Zoom viewing features let you turn up the magnification to get a view of an airport ahead. It handles nicely and looks good.

Since this is a demonstrator and not for distribution, a number of features are absent. But what is there is impressive. In particular, the *Amiga*'s screen window feature is handled nicely. You can drag your cockpit window around, resize it, or put it side by side with another view. Thus, you can be watching the view both over your right wing and straight ahead as you navigate a turn.

I'm looking forward to it. Jim Butterfield

HIGH ROLLER: \$29.95 simulation on disk for C64 from **Mindscape**.

HIGH ROLLER is a new flight simulation/combat game in which you play the pilot of a new Harrier Jet, one of the most sophisticated pieces of hardware in the U.S. Air Force. In case you're not familiar with the Harrier, it is the jet that can change the direction of engine thrust so that it can take off and land vertically, and hover like a helicopter. It is armed with some of the most powerful weapons available today.

The program offers several skill levels and a choice of flight practice, combat practice and actual combat. In it's

simplest form, *HIGH ROLLER* is a fun arcade-style shoot-em-up combat game. As you progress through the skill levels, you will need to consider more factors, such as map reading, navigation, fuel and armament management and, at the highest levels, a working knowledge of modern ground and air combat principles.

The graphics and sound effects are superbly done and quite realistic. Pilots tend to be very critical of flight-simulation programs because they never react as a real aircraft does. Although I am certified only for reciprocating engine aircraft, I was quite impressed with the response and reactions of this flight simulator. The lag-time present in most of them is not as obvious in this one, and it reacts and handles quite naturally. The instrumentation is a composite of that found on several new fighter aircraft, but is quite realistic and all the displays and controls worked quite well.

Whether you're a pilot (or wish you were) or just enjoy arcade games, this one will offer many hours of enjoyment. **RECOMMENDED.** -Art Lewis Kimball

STAR FLEET I: space simulation on disk for *Amiga* (\$55.00) and C64 (\$39.95) from Interstel through **Activision**.

STAR FLEET I was released some time ago by Cygnus for the C64 and became quite a popular space simulation game. The new version, distributed by **Activision** for the *Amiga* and other high-end home machines is bound to cause a new interest in this very sophisticated simulation.

STAR FLEET I, subtitled *The War Begins*, is listed as "the first in a series of advanced space battle simulations developed by Interstel." *STAR FLEET I* not a simple arcade-style shoot-'em-up. In fact, the graphics are a fairly simple tactical display rather than a real-time view of what is going on.

As a new recruit, you are required to complete a number of Space Academy practice missions before you are given command of a *very* expensive space cruiser.

Once you have received your commission, you select your ship from an impressive fleet and begin your missions. Each successful mission is entered into your log (which you can view, and which can be edited by the appropriate authority). You get promoted by completing missions.

The tactical displays are quite well done and very impressive in the Amiga version. You have a representation of the sector of space where your ship is and, by exploring each quadrant of that sector or sending out probes, you can discover where the enemies (Krellan and Zaldrans) are.

Strategy is a VERY important part of this game. As in real life, mistakes will cost you dearly. Each hit on your ship will cause damage. When enough damage is done, you start losing systems such as long range scanners, short range scanners, various weapon systems, shields, etc. If you manage to lose all your power...or if you are hit by enough power from the enemy, your ship is lost forever...and you will have to use another ship next time out. Needless to say, Star Fleet will not be inclined to promote you very quickly if you start losing their ships!

Documentation looks intimidating at first glance. There are two VERY thick manuals in the *Amiga* version...an Officers Manual which describes various tactics and the controls available. The Amiga version also contains a Star Fleet Training Manual which goes into detail on various strategies and gives some good hints on making your way upwards in rank.

In dollars-per-hour of fun, this package will have to rate EXTREMELY high as a value for anyone interested in space strategy. RECOMMENDED. -Art Lewis Kimball

TITANIC: \$29.95 strategy game for C64 from Electric Dreams (Activision).

TITANIC, Activision's latest release on the Electronic Dreams label, was first released in England where it was one of the most highly rated C64 games.

The game is based loosely on fact and is quite up-to-date...reference material

refers to this summer's exploration of the wreck by the submersible *Alvin*.

You are the pilot of a submersible craft with a robot arm which can enter the *Titanic* and explore the entire ship. In addition, articles can be sent to the surface for lab analysis and/or repair; articles can be sent to your agent for sale, providing you with more financial security; and photographs can be taken of objects to make the press happy.

Making the press happy is quite important - in addition to exploring the wreck, you must maintain a bank account which will support your mission. You have five financial backers who have provided funding....but it's running out. If you can keep them happy, they may sink additional money into the project. If you can't, they'll pull the plug! One way to keep them happy is to keep the press happy so they will print good reports. Periodic press conferences are called, and you must answer the questions in a manner that will get good press.

The actual point of the game is to find eight buttons which will inflate eight flotation bags attached to the *Titanic*. To do this, you will have to get through a lot of locked doors on the ship. The keys to getting through the doors are very clever. Scattered around the ship you will find various articles. Some of them are valuable and can be sold. Others can be combined in the proper place to cause the doors to open. For instance, if you were to find a tennis racket in one spot and a tennis ball in another and put them together on the tennis court...a locked door might automatically open.

A word of warning is in order: this game was written for British consumption! Some of the puzzles are fairly simple, but many of the puzzles rely on either a British sense of humor or familiarity with British idioms. Anyone who has done the crossword puzzle in the *Times of London* will be familiar with the British proclivity for wordplay. For instance: One of the more diabolical puzzles has you trying to open a locked door in a room called "Miniature Golf". A ball is in a

bunker on the floor. Among the items available are a nine-iron and a driver, neither of which have any effect on the locked door. However, when you find an Address Book...if your mind is warped enough... you might add the Address Book to the nine-iron and that works. Golfers will recognize this procedure as "addressing the ball". There are some others that are so totally British that many people will find the game, as I mentioned, utterly frustrating.

Map making will take awhile in this game. There are five entry points to the ship. Due to the damage, you cannot explore the entire deck on any level without many detours. Since there are seven levels to explore it will take some time before all the pieces of your map can be combined to give you a complete map of any deck. The variable intensity spotlight provides just enough light to see through the murky water, but none too clearly; after awhile it's easy to imagine that you really ARE exploring the sunken wreck!

I must give my thanks to Patricia Daley at Activision. Without her help I would still be hopelessly lost somewhere in the **Titanic!**

This program is guaranteed to give many hours of enjoyment. **HIGHLY RECOMMENDED**
-Art Lewis Kimball

AMERICA'S CUP: \$24.95 strategy game on disk for C64 from **Activision**.

AMERICA'S CUP is another timely **Activision** release for the C64. This one or two player game puts you on the actual course that will be used in the finals in Perth, Australia from January 31 to February 20th.

This game allows you to chose Amateur, Club Race or America's Cup Challenge level. The simulation is quite realistic and should please the most demanding sailor. The game was designed to include all the elements (and risks) of sailing. Weather, of course must be taken into consideration, and raising the wrong sail or failing to follow the proper procedure

could result in shredded sails, or worse, a swim in the ocean.

You can choose the country for which you will sail and the country the computer will represent, or you can sail under your own name. A word of caution: pay attention to the colors of your sails so you can pick out your boat once the race begins. After you select your country, the computer presents a difficulty menu, then a Weather Report. Current conditions, including wind speed and direction and a weather forecast, are provided. You then select your starting sails.

During play, an indicator panel in the bottom of the screen gives information on wind speed and direction, boat speed, buoy direction, current leg of the race, elapsed time and messages letting you know if you have committed a foul!

The sound and graphics in this game are breathtaking! The sound of the wind changes with conditions and the water condition is faithfully represented.

The instruction manual is quite comprehensive and includes the description of 70 nautical terms, a basic sailing guide for the novice, and an interesting account of the history of the **America's Cup** race from 1851 to 1983. A scoring guide is also included so you can keep statistics on the actual race during the first months of 1987.

A **MUST** for any sailing enthusiast and **HIGHLY RECOMMENDED** for those who just like an exciting simulation. -Art Lewis Kimball

ARCTIC FOX: arcade/combat simulation/-strategy game for **Amiga** (\$39.95) and **C64** (\$32.95) from **Activision**.

ARCTIC FOX was among the first games released for the **Amiga** and became very popular, although it's a moot point whether that was because of its merits, or its position as one of the only arcade games available. Reviews have varied from high praise to yawns of disinterest.

As the commander of a Super-Tank, you must defend the Arctic against alien invaders who are in the process of

converting the Earth's atmosphere to one more hospitable to them (and since they find Los Angeles' air too pure for consumption...you KNOW we're in trouble!)

Your tank is right out of the 21st century. The view through the tank's screen gives a creditable view of the terrain in fairly good perspective... due to the difference in graphics between the two machines, it is of course much more spectacular on the **Amiga** version.

A wide variety of weapons and defense mechanisms are available...and you'll need them. The aliens have impressive weapons, radar stations, and radar jamming devices. All these and, of course, the Air Converters must be destroyed as you make your way to the Main Fort.

On screen instrumentation includes a speedometer, gunsight, damage indicator, warning lights, oxygen percentage, a compass, and weapon inventory. There is also a bird's eye Radar View and Aft view.

The graphics and sound are impressive on both the **Amiga** and **C64**, but reactions of the tank are agonizingly slow. You almost get the feeling you are moving in slow motion. Having never driven a real tank, I can't say how this compares to real life...but it makes playing the game a bit of a chore. **RECOMMENDED** for hard core arcade players. -Art Lewis Kimball

HARDBALL: \$18.95 baseball arcade game on disk for the C64 by Bob Whitehead, from **Accolade**. DOS protected, 90 day media warranty, joystick required.

HARDBALL is a must for all armchair managers. There isn't anything like the real thing, but this comes close.

With **HARDBALL**, you can substitute players, change pitchers, steal bases, choose pitches, and change players.

If the previous paragraph piqued your interest, the sound and graphics will sell you on this game. **HARDBALL** is not an easy game to play, but it is the best of its kind that I have tried. With time and patience you may learn to play it well, but I doubt that it can be mastered.

The copy protection is very sophisticated, so don't count on being able to make a backup. You can buy a backup from **Accolade** for \$10.

If you want a good baseball game that let's you control everything, this is it. **HIGHLY RECOMMENDED.** W.H. Lambdin

DRAG RACE ELIMINATOR: \$... drag racing simulation game on disk for the Commodore 64, from Family Software

This game for the Commodore 64 offers a realistic simulation of several 1986 NHRA classes of professional drag racing competition with varying levels of game difficulty. Included are: TF/D Top Fuel Dragster, TF/FC Top Fuel Funny Car, TA/D Top Alky Dragster, TA/FC Top Alky Funny Car, and PRO/S Pro Stock classes.

Top Fuel cars have 2 speed transmissions, Top Alky cars have 3 speeds, and Pro Stock cars have 4 speeds. Although the Top Fuel dragsters are the fastest, cars with less horsepower must have high revving engines, numerically higher final drive ratios, and more gears in order to accelerate quickly. Therefore, the difficulty level is increased with a larger margin for driver error in the lower classes.

The game uses high resolution graphics with good sound effects, even though only one screen is actually used by the game for all levels of competition. The joystick is used for all controls. The firebutton is the accelerator, with engine speed indicated by the on-screen color coded tachometer bar graph. Pushing the joystick forward shifts gears into the next available gear. Rev'ing your engine too fast without shifting gears will blow your engine.

In each competition class there are several modes of play. A one player practice mode allows racing either of the two cars, depending on which joystick is used. In this mode, you race for time only. This is similar to actual practice runs, called time trials, that are used to hone a drivers skills and tune the car for

actual competition.

Two player competition is just like a real drag racing match. The computer records each player's wins, with a winner declared after winning 20 heats.

For single player competition, *Drag Race Eliminator* provides a highly skilled computer opponent. These Computer drivers are very quick and never blow an engine but, With practice, they can be beaten.

The play mode menu allows you to see the current class records or return to the main menu to change classes of competition. During play you can press the STOP key to return to the main menu.

At the end of each heat, *Drag Race Eliminator* displays your reaction time, elapsed time, and top speed. Your reaction time (RT) is measured between the "Christmas tree" amber light and the moment your car moves. The elapsed time (ET) is how long it takes you to cover the 1/4 mile distance between the start and finish line, measured in 1/1000 of a second. It's not unusual for a driver with a lower ET to lose due to a poor reaction time.

Drag Race Eliminator is a very informative and enjoyable game with good documentation. It is easy to play, but requires a good deal of practice to turn in a good performance. It seems to go over big with children, my 10 year old son keeps going back to it every few days. [RECOMMENDED? ed.] Robert Baker.

LITTLE COMPUTER PEOPLE (update): \$19 game/simulation on disk for the C64. From Activision. DOS protected.

Little Computer People is a nice package for children (not that older people might not enjoy it as well). I would call it a simulation instead of a game. You must keep you little person healthy and happy, and that is not always easy. If he is bested in games, he will pout; if he doesn't get enough food or water, he will get sick.

All the graphics are spectacular - except for the dog which looks like a rat. The high-resolution animation is smooth

and realistic, a first class job.

There are a few drawbacks to *Little Computer People*: It is an ongoing simulation, continuing from one session to the next, so if you play with the original there is no way to restart from the beginning. Make a backup and put the original away before you load the program. The plot is poor: all there is to do is keep food, water, and dog food in the house. It gets old after a while.
RECOMMENDED [??ed.] W.H. Lambdin

DISK UTILITIES

SUPERKIT 2.0: \$29.95 disk copy utility from the C64 and 1541. From Prism Software. DOS protected.

Superkit 2.0 is a vast improvement over 1.1. It has the same utilities as found on 1.0 and 1.1, but they work faster, you can view the directory, and all utilities work with one or two drives.

The following is a table of the time, in seconds, it took to copy a disk with only 90 blocks free.

Dual Normal	44.5
Single Normal	65.1
Single Normal w/verify	93.2

Dual Nibbler	32.5
Single Nibbler	59.9
Single Nibbler w/verify	didn't work

Dual File Copier	72.7
Single File Copier	76.6

Super Nibbler	78.6
(both single and dual)	

The Disk Surgeon, both single and dual, copied *Little Computer People* in 88.5 seconds

With the directory options and the improvements in speed, version 2.0 is vastly superior to versions 1.0 and 1.1. Another nice touch is an autobooting feature for the C128. The only real bug is

with the Single Normal Copy with verify, which doesn't work. In spite of these weak points, I still give *Superkit 2.0* a HIGHLY RECOMMENDED. W. H. Lambdin.

TIME-DOS: \$.? disk file date and time stamping utility on disk for the C64, C128 (both modes), and 1541 and 1571 disk drives. From Family Software.

TIME-DOS wedges itself into the normal operating system where it provides 10 new direct mode commands for one or two floppy disk drives. Drives with device numbers 8 or 9 are referenced as 'A' or 'B' prefixes to all ***TIME-DOS*** commands.

Mode settings allow program files to be date and time stamped automatically when created, accessed, or both. In addition, all file types can be stamped manually in direct mode or under program control. A real-time calendar clock (with auto-leap year) is accurate up to the year 2000. Also, a convenient JUMP table is built-in for programmers who wish to access the ***TIME-DOS*** routines from their own programs.

The utility is RAM resident and transparent to most Basic or other programs that do not use the same RAM. The C64 version uses locations \$C000-\$C980; the C128 version uses free RAM at \$1300-\$1BE0 and is functional with the built-in monitor. Both versions use the Time of Day clock contained in the 6526 CIA #2 for accurate time keeping.

There is no special disk formatting procedure necessary in order to use ***TIME-DOS***. The time and date stamps do not consume any user disk space or directory blocks. The information is placed in the four unused bytes following the byte reserved for the relative file record length found in every directory entry. Also, any ***TIME-DOS*** stamped disk may be used normally since the data is invisible to the standard DOS routines.

The C128 version is auto-booting on power-up or reset, and works on both 40 and 80 column displays. The C64 version requires a simple load and run sequence to get started. When first started, you're

prompted for the current date and time. Thereafter, ***TIME-DOS*** is activated and the current automatic stamping modes will be displayed.

TIME-DOS includes a new directory command that displays the usual directory with the added time and date information for those files that have been stamped. If desired, ***TIME-DOS*** can be disabled with a simple command without having to reset the system. A special SYS command can later reactivate ***TIME-DOS***.

The program works exactly as claimed, with no problems encountered and it is extremely easy to use. Documentation is good and covers everything needed. JUMP table information will be extremely interesting to those wishing to incorporate ***TIME-DOS*** with their applications. The ability to automatically stamp files is extremely handy for many applications and greatly enhances the normal directory information.

A demo program is also included on the normal ***TIME-DOS*** distribution disk. If interested, a copy of the demo program is available for downloading from the CIN New Products Information on QuantumLink. HIGHLY RECOMMENDED. Robert Baker

SUPER DISK LIBRARIAN: \$29.95 disk catalog utility on disk for the C128. From Free Spirit Software and <BSD> Software.

Super Disk Librarian (SDL) is a full featured disk cataloging and library system for the C128, running in 80 column 128 mode only, with a 1571 disk drive. The program reads and catalogs disk directories and prints disk labels. It will catalog up to 1,000 disks and 14,400 program names. It will also read heavily protected and CP/M diskettes. It also supports a second disk drive defined as device nine. This drive can be a 1541 or a 1571 drive, but at least one 1571 drive is required.

SDL operates in the FAST mode, giving extremely fast response to queries. The program is self prompting with menu selections made with the numeric keypad

for extra convenience, speed and simplicity. Any operation can be aborted with the ESCape key.

Each disk to be cataloged must be assigned within one of seven categories: Productivity, Telecommunication, Games, Utilities, Archives, Education, or CP/M. You cannot add, delete or change these categories used by the program. They're preset and fixed as they come.

Each *SDL* data disk is can catalog only 1000 disks. You must define how many disks can be cataloged within each category, up to 350 within any one category. The total of all disks allocated for each category cannot exceed the 1,000.

The entire data file can hold 15,400 filenames. Any given disk category cannot hold more than 2,200 filenames. Most of these limits are fine for the average user, but *SDL* has one major drawback - it cannot enter more than 25 filenames for any single disk! You're told in the manual to group similar files and manually catalog them under one name for compactness. But there are times when this just cannot be done.

Cataloging disks is straight forward, but not entirely simple. The program reads the data from the disk directory and displays a list of filenames found. You then have to manually tell the program which filenames to enter in the catalog. This can be as simple as a single keystroke to enter all filenames, or repeated keystrokes for each and every file to be entered, besides picking the disk category as well.

The program does allow manually entering a disk or file name. You also can use a different name to catalog any disk or file for special circumstances. When cataloging a disk that was previously cataloged, you can Overwrite the existing data, or keep the old data and Add the new data for archival purposes.

There are four ways to recall information to the screen. You can select any given category of disks and display all the disks cataloged within that category. You can then select any given disk within that category and view the

directory information for that disk.

Another way to view data is via an alpha-numerically sorted list of every filename in a selected disk category. Disk locator numbers are used to indicate which disk each file can be found on. The sort will take less than 3.5 minutes for a category with 2,200 filenames.

The third data display option provides a method to search for a disk or program based on the name or locator number you request. Wildcard searches can be conducted, but the output data will not indicate the full disk or program name. Using disk names is extremely fast since all data resides in memory. Program name searches take a short while (up to 1.25 minutes maximum) since the data disk must be accessed.

Finally, disk data can be edited or deleted from the library. You must view the data before it can be deleted. To edit data, the disk must be re-cataloged with the Replace option.

Printed reports allow printing a Full Index which shows disk names in each category, and all categories; a Master Program List gives every filename in all seven categories, by category, sorted alpha-numerically; a Category Program List gives every filename in the selected category; a Global Report - prints the entire data for every disk, in every category; a Category Report - prints the entire disk data for all disks in a selected category; Individual disk data; or Disk Labels using standard mailing labels.

SDL supplies a number of standard disk utilities, plus a few unique ones. You can change the format on a 1571 disk to eliminate the pause while the drive looks for an autoboot record on reset. You can also write and COPY PROTECT a disk!

Major drawbacks of the program are the omission of filesize and number of blocks free on disks when displaying disk directories, and omission of file types in many displays. Also, deleting any disk from the library can change the disk locator numbers for some or all of the remaining cataloged disks. This can

invalidate labels already on your disks.

Overall, a very nicely done program, but the limitation of only 25 files per disk and the inability to change disk categories are major deficiencies. [NOT RECOMMENDED? ed.] Robert Baker.

DISK LIBRARIAN V2.2: \$4 fairware disk cataloging utility on disk for the C64, from A.J. Kwitowski. Additional utilities available for \$2.50

This specialized data base provides automated entry and retrieval of data, reading directories from disks and storing records on a master library disk. It can handle up to 127 disks or 3500 files per library disk, with any number of files on any given disk.

You can call up the contents of a given disk, assign one of nine keys to each disk, and assign one of nine other keys to each file. Each key is user defined, and use of the keys is optional. Files that are used by a main calling program can also be linked to the main program.

After loading, you generally follow on-screen instructions. The F1 key will almost always abort non-menu screens. Help windows are available when data screens are visible by just hitting the space bar. One or two disk drives can be used along with an optional ASCII or Commodore 1525 (or compatible) printer. The default settings assume 1 disk drive and a 1525 printer, but can easily be changed if needed.

When entering disks, simply follow the prompts to enter the desired disk and the directory is rapidly read while various information is flashed on the screen. If previously cataloged, you can allow replacing the existing data to update the master index, or you can make a duplicate entry with the same disk name and id.

The disk read routines are designed to ignore copy protection schemes involving alteration of the disk's directory. A word of caution is in order: Disks that may have a protected directory should be cataloged first so you won't lose

previously entered directories if the protection causes the read to fail.

The display option allows you to view what disk directories are recorded on a library disk. You can then display or print the individual directory for any selected disk, plus change keys or file links. The main menu delete option must be used to delete disk directories from the library disk.

The two print options allow printing a copy of the four pages of instructions on how to use the program, or printing a list of all the files, etc. for all the disks stored on the library disk. The full library print out is very complete and nicely formatted, but rather slow to produce.

Registered users are entitled to program updates, usage hints, and utility programs at little or no cost. For example, a separate Disk Librarian Utilities disk is currently available to registered users for only \$2.50

The Disk Utility provides three options: sort/print all the files stored on a library disk, searching all the files for the occurrence of a given file name, or return to Basic.

The search utility allows you to identify the disk a given file is on without resorting to a manual search through printed data. When this option is selected, the library disk data is read into memory and the desired filename to be found is prompted for. Wildcard characters can be used the same as with the DOS Wedge. The search is then done in memory and is extremely fast.

As Fairware programs go, this is an extremely well done program with good documentation. It appears to be well worth the price and comparable in features to many commercial programs. Most functions are extremely fast and easy to use, with many options and features that are very handy. The accompanying utility disk is almost required and highly recommended.

Remember that this is a C64 program, and supports only the 1541 drive. [RECOMMENDED? ed.] Robert Baker

1541/1571 DRIVE ALIGNMENT: \$34.95 disk drive alignment utility on disk from Free Spirit Software and <BSD> Software.

This program uses video and audio prompts to report the alignment condition of the disk drive as you perform adjustments. The program works with the 1541 or 1571 (in either 1541 or 1571 mode) drives, on a C64 or C128 (in either 64 or 128 mode). The program will auto-boot to all modes. A second disk drive configured as device #9 can also be addressed. A calibration disk is provided on the second side of the program disk supplied in the package.

Complete disassembly instructions for either disk type is included with simple illustrations. There is even information on both types of 1571 drive motors.

An SX-64 drive can also be aligned, but warnings indicate it is a very complicated and delicate operation. You should consult a trained technician if you are unfamiliar with electronic equipment.

This program has several good and bad points. It does check half track alignments as well as full track alignments. You can check the alignment for any given track (or half track) over the full range of the disk. However, on a 1571 disk, no checks appear to be made using the second drive read/write head to check alignment on the other side of the drive, regardless of what drive mode.

The track alignment is only indicated as Excellent, Satisfactory, or Needs Alignment. There is no information given as to how far the drive is out of alignment if a need for alignment is indicated. There also is no check of the drive speed, and this can also be out of adjustment as well. Other drive alignment programs, like *Physical Exam* from Cardinal Software, do give you additional tests and information over and above what this program provides. [NOT RECOMMENDED? ed.]
Robert Baker

UPDATE: Disk speed cartridges

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I recently tried an interesting variation with **Mach 128** and **GT4** with the 1571 disk drive. The 1571 allows a disk to be used as two separate single sided disks by sending the command

U0>Hx

where x is 0, standard head, or 1, opposite head of the disk drive. This arrangement allows for 288 directory entries and 1328 blocks of available storage on a single disk, but sacrifices any 1571 mode speed advantage.

It seems that the disk speed cartridges work when head 1 (non-standard) head is used, but the benefits are not as great. Monopole, which takes about 13 seconds to load using the Mach 5 or GT4 with a standard 1541 or head 0 of the 1571, takes about 26 seconds to load using either **Mach 128** (in 64 mode = **Mach 5**) or the **GT4** cartridge. Tim

LETTERS

Dear Sirs:

I felt I should write a response [to] the letter from Joe Grossinger and his complaint of incompatibility with the Lt. Kernal Hard Disk System and his BBS...

I operate a BBS (Info-Net/Police-Net, Houston, TX, 713-873-0430) with a 20 megabyte system from Fiscal Information too. In fact, I was the first Lt. Kernal owner in the United States and used the drive on the BBS for about a year and a half (February 1985 to August 1986). During the 18 months that it was on-line, it ran 24 hours per day with no hardware OR software incompatibility! The only problems I had in the beginning were minor software adjustments to my program to accomodate the use of 10 logical units on one device #8. During those adjustments, Roy Southwick and Lloyd Sponenburg were always just a phone call away to help me

adjust. As you know, BBS software is very personalized and some software adjustments are needed no matter what drive configuration you decide to use on your system.

Although the BBS has not been running on the Lt. Kernal for the last couple of months, I hope to have that resolved shortly. Because of an idea and inspiration from Roy Southwick of Fiscal Information, I mounted my 20 meg. hard disk **inside** an SX-64, and moved the 1541 into the top storage compartment. I now have an "HX-64" and take it to work with me each day. I intend to purchase my second Lt. Kernal system around the first part of 1987 and dedicate it to the BBS again. The excellent DOS commands, copy routines, and other features make this drive perfect for BBS use and I sure do miss having it "online"!

Not only is the drive durable and software compatible, it is well worth the asking price considering the storage capability and speed it offers! The product IS the answer to mass storage and speed on the Commodore computers and I have nothing but praise for the system and the support I have received from Fiscal Information on DOS upgrades. Thanks Fiscal Information and keep up the good work!

Sincerely

Alan Bragg, SYSOP
Texas

INTERFACES & HARDWARE

HOTSHOT: \$59.95 graphics printer interface for the VIC20, C64, and C128 from Omnitronix.

Hotshot is a decent little interface in most respects, but is obviously a low budget entry trying to ride on the strength of the printer interface market. It works, and I have no complaints about how it works when connect to a C64 or C128 and either a Legend, Dynax, or Quadram.

The standard functions work as expected using either secondary addresses or command channel control sequences. These features include PETSCII/ASCII translation with or without linefeeds; transparent with or without linefeeds; HEX mode; control code substitutions by ASCII value, keystroke sequence, or graphic character; and double- and quad-density printing with some printers.

The 24 pages of notes that come with the interface are something worse than poor. In addition to being inconsistent, this attempt at a manual is not complete. While most users who might attempt it would know what chip would be needed for an interface buffer, several less experienced users might try almost anything when all the manual says is that you need an "8K memory chip" to give the interface an 8K buffer.

I also happen to dislike interfaces that do not have a ribbon cable between the actual interface card and the Centronics connector. The *Hot Shot* plugs directly into the back of the printer. Aside from being troublesome when connected to printers which, like Legends, have the Centronics port upside-down, the *Hot Shot* does not provide any way to clip the interface to the printer to keep it from falling off.

As soon as **Omnitronix** adds a ribbon cable and rewrites the manual, this interface will be average. Until then, NOT RECOMMENDED. Tim.

DOUBLE QUICK BROWN BOX: \$59 battery backed-up non-volatile programmable 16K RAM cartridge (\$39 for an 8K RAM version, not reviewed), with utilities disk, for the C64 and C128 in either mode, from Brown Boxes, Inc. 30 day money back **satisfaction** guarantee, one year repair or replacement warranty on the cartridge.

Even though I have not found it very useful, I like this impressive little box and I like the people who make it. Essentially, the *Double Quick Brown Box* is just 16K of non-volatile RAM sitting on

the cartridge port into which you can stick up to eight different files. Once there, you can call any one of these programs into the computer and run it with a two keystroke command. It is not really a RAMdisk because it requires special utilities to put files into the box, but it comes close. The lithium battery has an expected life of 10 years, meaning that the programs you put into it now should still be there in 1997.

The biggest problem was that I could not get it to work with C128 FAST mode. Other than that, it seemed to have a few problems with machine language utilities sitting in HIGH RAM such as the standard DOS 5.1 Wedge. But, for BASIC programs, especially fairly small, often used C64 utilities - file readers, ML monitors that sit low in memory, etc., - it is excellent. Although I would like to "highly recommend" the *Double Quick Brown Box* to everybody, I cannot. It is the kind of thing that, if you had it around, you could easily find a good use for it but, unless you already have a use for it, the cost is hard to justify. If you can use it, RECOMMENDED. Tim

MSD Information Exchange
Issue No. 4 December, 1986

The Exchange is not affiliated with any commercial organization. Recommendations are based solely on the experiences of users. The Newsletter will appear about every other month. Subscriptions are \$5 for five issues (\$8.15 US overseas air mail). Previous issues are on the Exchange Disk. When communicating with The Exchange, self addressed stamped envelopes (SASE's) are appreciated.

[Excerpts from the *MSD Information Exchange* will be included on occasion, as space warrants, in the *Midnite*. This month, we are including a large part of the *Exchange* as an invitation and encouragement to MSD users to subscribe - and contribute - to Mr. Eckler's efforts

to gather and disseminate information on this popular orphan. We ask, also, that reviewers who have MSD drives include in their submissions information about MSD compatibility. Tim.]

Printer Interfaces

A user has reported an SD-2 that will not work on the serial bus with MW-350 or Cardco G-Whiz printer interfaces. It will work with the MW-302 or the MW-350 with the 4K buffer removed. None of these interfaces appear in our hardware database. Are some interfaces incompatible?

Printer interfaces often are not reported in user hardware summaries. Those that have been reported and are presumably compatible include: Tymac The Connection, Xetec GPI and Super Graphics, Cardco A and G+?, and Drude. The Xetec Super Graphics is currently regarded as the best available although The Tymac is most popular. Xetec's are suspected of causing occasional "Device Not Present" errors when addressing the disk drive.

MSD Overseas

Thanks to magazines carrying Exchange information, we've made contact with users in two other parts of the globe where MSD and presumably Commodore are strong: Australia/New Zealand and Netherlands/Germany. Australians indicate drive mechanisms made in Taiwan, but the drives are similar to those in the States. Serial numbers over 100,000 are reported.

SD-1 Conversion

Thanks to Lyle Giese of Lyle's Computer Repair, Woodstock, IL, for a detailed article from the April issue of "Paper Modem" describing his conversion of an SD-1 to an SD-2. The article is on the Memory Map Seq Disk.

Users report some MSD drives with Shugart drive mechanisms. The lever latch is at the bottom of the mechanism rather than at the top as on the TEC's. On Shugart's the drive motor runs constantly when power is on. There is no indication that Taiwanese parts are used in the US.

Serial Rate

The MSD Service Manual reports a maximum design rate for C-64 serial transmission of 750 bytes/sec. User John Krout reports an average rate of 360 bytes/sec based on a full screen Doodle file. Remember the high tech 2400 baud modems. Your C-64 communicates in the serial mode at less than 3000 baud. The maximum design rate for the MSD IEEE connection is 1800 bytes/sec.

Software Publishers

To encourage compatible software the Exchange would like to advise publishers of the availability of the MSD memory map. Those most often cited as having incompatible software include: Activision, Berkeley, Broderbund, Electronic Arts, Epyx, Imagic, and Springboard. Addresses are needed for the letters. If you have addresses or think others should be added, please pass them along.

The Exchange Disks

The Exchange Disks are free to those sending a blank disk with return postage. Database disks are supplied as sequential files (which may be read with most word processor or terminal programs) or data disks for Superbase. When sending disk(s), please indicate your choice. Disks are returned copied on both sides. Any combination of disk sides can be supplied. Current choices are: Software database SB/Seq; Memory Map SB/Seq; Programs 1, 2, and 3.

The Software database now includes compatibility information on over 400 programs. The Members database is on the same disk. Both files are still available on one side in sequential format.

The Memory Map Seq Disk includes the Memory Map, Dos Programming, SD-1 Conversion articles, Chips, Service, Parts Summaries, and all previous newsletters. The SB disk includes only a less complete version of the memory map.

Notes

Basement Boys Software is shipping Fast Hack'em v4.1, which is MSD compatible and

has excellent features.

Although IEEE interfaces are the best way to speed up your MSD drive, users report several MSD compatible fast load programs, including the Valu Ware utility disk available for under \$10 at discount stores. The copy program is not MSD compatible. A similar program appears on Programs 2. Fast Boot! at \$14.95 from Aquarian Software, PO Box 22184, Portland, OR 97222, is also reportedly compatible.

Users report that MSD is no longer repairing the drives. Requests are being referred to HBH. Info (64) reports that an unnamed corporation is negotiating for rights to the drives.

Not an MSD problem, but one user reports rumors of C-64 power supplies that go bad by going overvoltage rather than undervoltage. The overvoltage can fry all the chips in your C-64.

IEEE Interfaces

This summary is abstracted from previous newsletters of the MSD Information Exchange.

The addition of an IEEE interface is the best way to increase the speed of an MSD disk drive. It is better than a high speed loader program because increased speed is available for all disk operations rather than only a few. In addition, it is present when power is turned on; an IEEE interface does not have to be loaded before the program of interest.

How much speed increase you get depends on the IEEE interface. Buscard II is the slowest. Typical IEEE interfaces increase the speed two to five times. Paul Rushton has contributed a high speed loader program for the SD-2 with Buscard II that loads at 6700 bytes/sec.

Some IEEE interfaces include additional features as firmware. Quicksilver provides the features of 1541 Flash!, ie, built-in wedge commands and a (primitive) machine language monitor. Buscard II provides extras such as BASIC 4.0 commands. Quicksilver also includes dip switches for setting the device number and to turn off the IEEE interface if you want to use your drive in serial mode, and is equipped with

an extension to the cartridge port, so cartridge programs can be used with Quicksilver installed. Finally, it includes a push button (hard) reset switch for the C-64.

IEEE interfaces may also be used with other devices. Except for the 1541 and the 1571, all Commodore disk drives require IEEE connection. These include the SFD-1001, 2031, 2040, 3040, 4040, 8050, 8250, 9060 and 9090. IEEE interfaces may also be used with Commodore printer models as follows: 2022, 2023, 4022, 4023, 8023, and others.

The compatibility problems of IEEE interfaces should be noted. Some, most notably the MSD IEEE interface, use patches in C-64 memory to intercept Kernal routines. These patches may be overwritten, making programs that are compatible with MSD drives incompatible with the IEEE interface. Most of the interfaces have corrected this problem. They are compatible with almost all software that is compatible with an MSD in serial mode.

The exception is high speed copy programs for the SD-2 dual drive. Neither Fast Hack'em nor the Ultrabyte nibbler can be used with IEEE interfaces. MSD Shurecopy is reportedly compatible with Buscard II, but not with Quicksilver.

(Compiled by *MSD Information Exchange*, 2705 Hulman St, Terre Haute, IN 47803, from information submitted by users. December 23, 1986)

WANTS, TIPS, ETC.

Dear Sirs,

I have been using a Commodore 8023P printer for years, even with my VIC 20.

Now that I have a C64 and a *BusCard II*, I am still having trouble with some programs not printing.

These programs will not print with this set up.

Multi Plan

Print Shop

News Room

Cal Kit from Batteries Included

If anyone knows a way to get these programs to print with a C64, *BusCard II*, and an 8023P printer please help.

Thanks

Robert A. Roy Jackson, TN

TAPE TO DISK COPIER

The following routine will copy most, if not all, tape files to disk. It has no error checking routine built in, so if it runs into an error it will lock up.

If you just want it to copy a certain number of files, then POKE 2,(number of files). I don't know who wrote it, but it works.

```
10 FORA=679TO763:READB:C=C+B:POKEA,B:NEXT
15 IFC<>9971THENPRINT" **** DATA ERROR
   ***":END
17 PRINT"TAPE TO DISK READY. SYS 679 TO
   ACTIVATE":END
20 DATA 169,064,133,003,169,001,162,001
30 DATA 160,001,032,186,255,169,000,032
40 DATA 189,255,169,000,032,213,255,173
50 DATA 060,003,201,005,240,054,201,004
60 DATA 176,226,230,003,165,003,141,080
70 DATA 003,169,016,162,065,160,003,032
80 DATA 189,255,169,002,162,008,160,002
90 DATA 032,186,255,173,061,003,133,251
100 DATA 173,062,003,133,252,174,063,003
110 DATA 172,064,003,169,251,032,216,255
120 DATA 198,002,208,176,96
```

W.H. Lambdin, East Bernstadt, KY

DAISY WHEEL CHANGE

by Charles W. Lewis

Dear Forum:

In Issue 36, you published a letter about changing the daisy wheel in the middle of a print line and indicated that a pause command could stop the printing in between lines, but not in the middle.

That's certainly true for *PaperClip*, but there is a way to get around that limitation - it is not very elegant, but it works! You cannot use word wrap for the paragraph in which the change is to be made; instead, press <RETURN> [at the end of each line] the way you would on a typewriter.

When you get to the point where the change is to be made, type the line up to the point where the printer change occurs and press <RETURN>. Then enter the pause command. The next line should begin where the last one left off. Repeat the process when you want to change back to the original printwheel. The document will look like this on the screen:

first wheel

second wheel

first wheel.

When you print, all you have to do is raise the paper one line before continuing to print. It means the page length will be off for that page, but unless you change more than once on a page, the two extra blank lines won't be noticeable.

It isn't fancy, but it gets the job done.

Sincerely,

Charles W. Lewis, Fitzgerald, GA

Twenty-five Cent C64 Repair

by

W.H. Lambdin

Sound impossible? It is true. A friend of mine (15 years old) received a C64 as a birthday gift. Two weeks later it went into never-never land. The power light would come on, but nothing else would work. On 28 October, he called me asking if I could help him with his sick computer. I had him check for burned chips [which are extremely hot to a heavy touch], and the fuse. Everything seemed OK. I was running out of ideas, and I was getting desperate, so I told him to replace the fuse before shipping the unit for repair, even though it looked good.

He called me on 6 November with the good news that his C64 was up and running as good as ever.

I have since looked at the fuse and cannot find anything wrong with it, even with a magnifying glass, so a visual inspection is not always enough.

The fuse can be purchased at Radio Shack. I don't know the number, so take the original fuse with you.

If you have a computer with the same symptoms, try replacing the fuse. You may be able to fix your C64 for a quarter.

COMMODORE ROM UPGRADES

from the desk of

Fred Bowen

(reprinted with permission)

Following this little commentary are three messages describing the changes made to three ROM updates I've recently released to the mask shop. If you have a C128, 1571, or one of those new 1541C's you should peruse these for your favorite bug. If you don't see it, I'll be upset. You should have reported it! As I said, they are off to the mask shop, so you won't be able to get them for several weeks yet. But it is progress none-the-less, and I wanted to try and warm your cockles for the holidays. When they become available, I'll be sure to let you know who to contact, cost, and so forth, for your very own copies. Me? I'm gonna warm my cockles beside the xmas tree, by the fireplace, with some 'nog or brandy. If this news didn't do anything for you, I suggest you do likewise. Happy holidays.

Fred Bowen

Commodore Electronics, Ltd.

1200 Wilson Drive

West Chester, PA, 19380

1541B DOS ROM RELEASE NOTES

Commodore Electronics, LTD.

5 December 1986

1541B ROM RELEASE NOTES: 251968-02 (16K byte, 300ns, checksum=\$1A69) THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE 251968-01 ROM CODE TO CREATE A NEW ROM RELEASED ON 12/05/86. THIS RELEASE IS MADE TO CREATE MASKED ROMS FOR PRODUCTION OF THE 1541B/C MODEL DISK DRIVE ONLY.

1. The interrupt rate change from 15 to 8ms for slightly better performance caused compatibility problems with some software that used that timing for its own purposes. It is now 15ms.
2. The 1541B board has troubles accessing tracks beyond 35 attributable to the new data separator, although the problem always existed (wrong bit cell densities because TRKNUM only listed up to track 35). TRKNUM has been extended.
3. SAVE-@ (SAVE with replace) is fixed. The variable NODRV is now a 16-bit addressable var, and the STLBUF routine steals the buffer locked by drive one.
4. Relative File fixes (unspecified).
5. Serial bus (DEVICE NOT PRESENT) fix. TSTATN now clears IRQ.
6. Block read fix (unspecified).
7. Write to stack area bug (unspecified).
8. Set decimal mode (SED) before disabling IRQ (SEI) fixed.
9. Disk full bug (unspecified).
10. Add copyright notice for legal types and thieves.
11. The ROM checksum adjustment byte at \$C001 is now \$46.

* * * * *

PLEASE NOTE: THIS ROM WILL NOT WORK IN EARLIER 1541 PCB'S, WHICH REQUIRE DIFFERENT SIZED ROMS (8K), AMONG OTHER BOARD DIFFERENCES!

* * * * *

1571 DOS ROM RELEASE NOTES

Commodore Electronics, LTD.

5 December 1986

1571 ROM RELEASE NOTES: 310654-04 (32K byte, 300ns, checksum=\$D8C6) THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE 310654-03 ROM CODE TO CREATE A NEW ROM RELEASED ON 12/05/86. THIS RELEASE IS MADE TO CREATE MASKED ROMS FOR PRODUCTION OF THE 1571 (NON-CR) MODEL DISK DRIVE ONLY.

1. The Set Overflow flag was not disabled when exiting the 1571 controller. This is the cause of many seemingly random and difficult-to-reproduce problems. This particularly explains most of the Relative file problems.
2. TSTATN caused 'DEVICE NOT PRESENT' errors because the IRQ source was never cleared. This has been fixed.
3. The BAM swap bug. When all the buffers are allocated by the application, the DOS frees up the BAM buffer by marking it out of memory. When it was reread it would also reread the BAM for side one. If the side-1 BAM was 'dirty', it would be corrupted. The fix uses a new RAM location, \$1B6 for a swap flag, and rebuilds the side-1 BAM upon a reread. This usually occurs with multiple files open and sectors being allocated on both sides of the disk.
4. Previously BAM allocation on side one would cause the BAM image to be written every access. This has been fixed.
5. SAVE-@ (SAVE with replace) is fixed. The variable NODRV is now a 16-bit addressable var, and the STLBUF

routine steals the buffer locked by drive one. Original 1541 bug.

6. Previously an active collect in 1541 emulation mode would write a zero to the double sided flag in the BAM. This has been fixed.
7. Applications which addressed tracks beyond 35 (on any side) previously used incorrect bit cell densities because the table TRKNUM only listed up to track 35. The tables TRACKN and WORKTABLE replace TRKNUM and WORKTBL, respectively, and extend the tables to track 40. Same situation on 1541's.
8. A 1541 ROM revision changed the variable TIM from \$3A to \$20 which resulted in problems for some applications. It is once again \$3A, like the original (-05) 1541 ROM.
9. USEDTS returned a 'BLOCK NOT AVAILABLE' status when the number of blocks free was equal to 3. This has been fixed.
10. Previously during a BURST GCR FORMAT the activity led was not activated. This has been fixed.
11. The 1571 BURST LOAD routine would not load 'Locked Files'. This has been fixed.
12. Previously while loading files using the BURST LOAD routine, retries were not performed. This has been fixed.
13. Motor acceleration time for the MFM controller was too long, which affected performance when reading and writing in MFM format. This has been fixed.
14. Previously determining whether a diskette was double-sided or single-sided GCR would take too long due to valid sync pulses found on 'flippy diskettes' and MFM diskettes. This has been fixed.

15. SPINP interrupts from SP (fast serial input) were not enabled properly. This has been fixed, but has no affect on the operation of the serial bus.
16. Previously if a copy was performed addressing drive one, the error channel would return status '00,OK,00,00'. This has been fixed.
17. Previously the ROM test did not check the first page in ROM memory. This has been fixed.
18. The ROM checksum at \$8000 and \$8001 is now \$23, \$C0.
19. The ROM signature at \$C000 is now \$D3.

C/128 SYSTEM ROM RELEASE NOTES

*Commodore Electronics, LTD.
7 November 1986*

C128 ROM RELEASE NOTES:
318018-04, 318019-04, 318020-05,
318022-02, 318023-02

THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE 318018-02, 318019-02, AND 318020-03 CODE TO CREATE A NEW ROM SET RELEASED ON 11/07/86. THIS RELEASE IS MADE TO CREATE MASKED ROMS FOR PRODUCTION. THESE ROMS ARE TO BE USED AS A SET, REPLACING THE PREVIOUS ROM SET ENTIRELY. THEY ARE NOT TO BE MIXED.

THIS RELEASE IS MADE SIMULTANEOUSLY IN THE FORM OF 16KB AND 32KB ROMS, FOR USE IN THE FOLLOWING SYSTEMS: C128, C128D, C128CR, C128DCR, AS APPROPRIATE.

PLEASE NOTE: AN 11/18/85 ENGINEERING RELEASE OF A C128 ROM SET WAS NEVER RELEASED TO PRODUCTION, AND ACCOUNTS FOR THE APPARENT JUMP IN ROM REVISION NUMBERS. THE FOLLOWING INFORMATION INCLUDES THOSE DIFFERENCES AS WELL.

The following information represents a filtered condensation of all known problems, complaints, and suggestions that

pertain to the C/128 system software to date (exclusive of CP/M). The current ("original" ROMs) system software consists of:

1. Part# 318018-02
BASIC LOW (\$4000-\$7FFF)
2. Part# 318019-02
BASIC HIGH, MONITOR (\$8000-\$BFFF)
3. Part# 318020-03
EDITOR, KERNEL, CP/M (\$C000-\$FFFF)
4. Part# 315078-02
DIN ED, KERNEL, CP/M (\$C000-\$FFFF)
5. Part# 318022-01
BASIC, MONITOR (\$4000-\$BFFF)
(includes 1+2 above)
6. Part# 318023-01
ED, KERN, CP/M, C64 (\$C000-\$FFFF)
(includes 3+4 above)

The updated C/128 16KB ROM set bears the following part numbers. (The PCB socket number is valid only for original PCBs).

1. # 318018-04 cksum = 9A40
BASIC LOW (\$4000-\$7FFF, U33)
2. # 318019-04 cksum = 6F80
BASIC HIGH, MONITOR \$8000-\$BFFF U34
3. # 318020-05 cksum = EEC4
EDITOR, KERNEL, CP/M \$C000-\$FFFF U35
4. # 315078-03 cksum = E4C4
DIN ED, KERNEL, CP/M \$C000-\$FFFF, U35
5. # 318022-02 cksum = 09C0
BASIC, MONITOR \$4000-\$BFFF U34
6. # 318023-02 cksum = F324
EDITOR, KERNEL, CP/M \$C000-\$FFFF U32
(Note that #6 contains the C/64 ROM.)

Each 16KB ROM block contains a small patch area for changes, and all patches described below have been accomplished such that any particular change will never affect more than one ROM. Similarly each ROM contains a revision status byte (at \$7FFE, \$BFFE, and \$CFFE) which software

can test to determine the version of the host system. The "original" ROMs contain \$00 in these locations and the "update" ROMs described herein contain \$01. Each ROM has had several changes, as summarized on the following pages.

Part Number 318018-04
BASIC LOW (\$4000-\$7FFF)

1. LIST and DELETE commands. Previously they did not report as errors certain non-numeric characters passed as arguments, such as 'LIST A'. This has been corrected totally in-line by adjusting an erroneous relative branch in the 'RANGE' subroutine.
2. CIRCLE command. Previously an unspecified Y-radius defaulted to the X-radius (as it should), but the X-radius value had already been scaled for the X-axis and not the Y-axis. This has been corrected totally in-line by scaling the radii after the defaults have been established.
3. RS-232 Status. Previously accessing ST after RS-232 I/O resulted in an incorrect status being returned from, and a zero written to, location \$10A14, possibly corrupting the BASIC variable area. This was a result of BASIC calling the Kernel routine 'READSS' with the incorrect RAM bank in context. This has been corrected totally in-line by substituting the correct BASIC subroutine call.
4. CHAR command. Previously using CHAR with the 80-column text screen (GRAPHIC mode 5) resulted in RAM corruption at locations \$D600 and \$D601 of RAM bank 0 (the BASIC text bank) due to BASIC calling the Editor PLOT routine without the I/O block in context. This has been corrected utilizing two patch subroutines.
5. RENUMBER command. Previously the pass 2 routine, which was to pre-scan BASIC text and report 'out of memory' errors

prior to actually changing anything, was seriously flawed. This has been corrected utilizing a patch subroutine.

6. DELETE command. Previously did not limit-check itself when moving down BASIC text, therefore it was possible to crash when DELETEing lines at or near the top of memory (near the MMU configuration registers). This has been corrected utilizing a patch subroutine. Also, DELETE previously exited to MAIN via 'JMP', effectively ending the evaluation of the current command string. This has been corrected by substituting an 'RTS', allowing direct commands like 'DELETE 10: PRINT"DELETED LINE 10"' to work correctly.
7. PLAY command. Previously the SID frequency tables were not exactly NTSC concert pitch. Also, there was no provision for adjusting the frequency for PAL systems. This has been corrected by changing the (NTSC) frequency tables, creating new PAL tables, and utilizing patch code to select from the appropriate table as determined by the Kernel PAL NTSC flag.
8. The BASIC ERROR handler previously failed to clear pending string temporaries when an error was TRAPed. This has been corrected via patch code to reset TEMPT to TEMPST.
9. The powerup copyright notice has been updated to 1986, which will serve as an immediate visual indication of the ROM update status. Also, a new notice has been placed at \$7FC0.
10. The ROM signature at location \$7FFC and \$7FFD (lo/hi) is \$8DEF. (new since last release).
11. The ROM revision byte at location \$7FFE, has incremented from \$00 to \$01.

12. The ROM checksum byte at location \$7FFF, has changed, from \$4C to \$61.

Part Number 318019-04
BASIC HIGH, MONITOR (\$8000-\$BFFF)

13. RSPRITE and RSPPOS functions. Previously they accepted as parameters sprite numbers in the range 1-16, which is incorrect. This has been corrected totally in-line by limiting the range check to 1-8, and reporting an illegal quantity error for sprite numbers outside this range.
14. PRINT USING command. Previously there was an anomaly involving the use of floating money symbols ('\$') and commas. The command 'PRINT USING "#,##\$.##"; 123.45', for example, resulted in the output '\$,123.45', which is incorrect. This has been fixed utilizing a patch subroutine which checks specifically for the '\$,' occurrence and substitutes a '\$' (' ' = fill character) whenever found.
15. Relative Coordinates for all graphic commands (except MOVSPR) were incorrectly processed. The problem was apparent when negative relative coordinates were used, which resulted in an illegal quantity error. This has been corrected totally in-line by substituting a different subroutine call to pre-existing code. This change affects the BASIC commands LOCATE, DRAW, PAINT, BOX, CIRCLE, GSHAPE, and SSHAPE. This change also allows negative absolute coordinates to be accepted (previously they resulted in an illegal quantity error), although the legal range remains a 16-bit value: 0-65535 (unsigned) or -32768 to 32767 (signed: i.e., -1 is equivalent to 65535).
16. DOPEN and APPEND commands. Previously it was possible to open two or more disk channels with the same logical file number without incurring an error

report. This has been corrected totally in-line.

17. MATH package. An original bug fix (ref: double zero bug) to the (F)MULT routine has been found to result in small errors (such as $2^{15} = 32768.0001$). This has been corrected totally in line by fixing the original (dbl-0) problem in a different way.
18. A copyright notice has been placed, starting at \$BFC0.
19. The ROM signature at location \$BFFC and \$BFFD (lo/hi) is \$CDC8. (new since last release).
20. The ROM revision byte at location \$BFFE, has incremented from \$00 to \$01.
21. The ROM checksum byte at location \$BFFF, has changed from \$3A to \$C5.

Part number 318020-05

EDITOR, KERNEL, CP/M (\$C000-\$FFFF)

22. CAPS LOCK Q. Previously an error in a key matrix decode table caused a lower-case 'Q' to be passed when the keyboard is in CAPS LOCK mode. The table has been corrected by substituting the correct value for upper-case 'Q'.
23. FUNCTION KEYS. Previously the function key handler, part of the SCNKEY routine at CKIT2, failed to detect a function key string pending. This has been corrected via patch routine, which will ignore new function key depressions until the string in progress has been output (i.e., KYNDX = 0). Also, DOPFKY now exits via SCNRTS, instead of simply RTSing.
24. IOINIT system initialization. Previously the RS-232 pseudo-6551 registers were not initialized because these values are expected to be given by the user whenever RS-232 channels

are OPENed. Apparently many C64 users have taken advantage of the fact the C64 'happened' to clear these locations and fail to specify critical parameters. These RS-232 registers are now initialized to default to: no parity, full duplex, 3-line, 1-stop bit, 8-bit words and 300 baud, via a patch subroutine.

25. IOINIT PAL system initialization. Adjustments have been made to the 8563 initialization values for PAL systems. The PAL horizontal total (register 0) changes from \$7E to \$7F. The PAL vertical total (register 4) changes from \$27 to \$26. These changes shift the cycle time from 20.320us to 20.032us. The patch required a patch subroutine, as well as a change to VDCTBL.
26. BASIN system call. Previously attempting input from a logical channel to the screen (e.g., via INPUT#) resulted in line too long errors. This has been corrected utilizing a subroutine patch to preserve bit-7 of CRSW, which serves as a flag to the Editor that a (pseudo) end-of-line has been reached. Also, TBLX is copied to LINTMP to correctly locate the current cursor line for the Editor. Please note that switching between the 40 and 80-column text screens, opening and closing windows, or clearing text screens can confuse logical screen channels. The Editor variable LINTMP (\$A30) is a global, not local, variable as it should have been. Users can POKE LINTMP with the logical screen line number before INPUT#'s as a work-around.
27. OPEN RS-232 system call. Previously it was possible to receive a carry-set status, normally indicating a error, when no error existed after OPENing an RS-232 channel. This has been corrected totally in-line by a modification to the code which checks

for the proper X-line hardware states.

28. LOAD system call. Previously the normal (a.k.a. SLOW) load mechanism did not preserve the starting address of any LOADs, which made the BASIC 'BOOT "file"' command form malfunction unpredictably. This is apparent only when used with 1541 drives. This has been corrected via a patch subroutine, which saves the starting address of all LOAded files at SAL and SAH, the same place the fast (a.k.a. BURST) load mechanism does.

29. DMA system call. Previously the Kernel forced the I/O block into the user's memory configuration at all times, which is no longer necessary and, in fact, seriously limits the functionality of the RAM expansion cartridge. This has been corrected by a ROM patch routine, which affects all Kernel DMA system calls as well as the BASIC FETCH, STASH, and SWAP commands. Also, previously it was possible for an IRQ to occur between the 'arm DMA' and 'trigger DMA' sequences, resulting in a DMA operation with the system configuration in context regardless of desired configuration. This has been corrected by adding 'PHP/SEI...PLP' instructions around the JSR to DMA RAM code at \$3F0. Applications using the DMA RAM code at \$3F0 should do likewise. Finally, in this patch changes were made to enable DMA operations to all RAM banks by correctly using the VIC bank pointer found in the MMU RAM configuration register (\$D506, VA16=bit-6 and VA17=bit-7). Applications using the Kernel routine at \$FF50 will inherit these changes automatically. Please note that NMI interrupts can screw-up DMA operations, as they cannot be masked.

30. A copyright notice has been placed, starting at \$CFC0.

31. The ROM location \$CFF8 is reserved for

national character ROM checksums. This does not apply to US ROMs, which contain \$FF here. (new since last release).

32. The ROM location \$CFF9 is now reserved for country codes. The US ROMs contain \$FF here. (new since last release).

33. The ROM location \$CFFA and \$CFFB (lo/hi) contain the national character set signature. This does not apply to US ROMs, which contain \$FFFF here. (new since last release).

34. The ROM signature at location \$CFFC and \$CFFD (lo/hi) is \$8F76. (new since last release).

35. The ROM revision byte at location \$CFFE, has incremented from \$00 to \$01.

36. The ROM checksum byte at location \$CFFF, has changed from \$C3 to \$3C.

37. The Kernel revision byte at location \$FF80 has incremented from \$00 to \$01.

Part number 315078-03
DIN ED, KERNEL, CP/M (\$C000-\$FFFF)

There have been no revisions to the national portions of the many national Kernel/Editor ROMs. All revisions described above for the US version have also been made to the national versions.

38. A copyright notice has been placed, starting at \$CFC0.

39. The ROM location \$CFF8 is reserved for national character ROM checksums. The German/Austrian (DIN) ROMs contain a \$FF here (that really is the checksum!).

40. The ROM location \$CFF9 is now reserved for country codes. The German/Austrian (DIN) ROMs contain \$00 here. US ROMs contain \$FF here.

41. The ROM location \$CFFA and \$CFFB (lo/hi) contain the national character set signature. The DIN ROMs contain \$91F3 here. This is unused (\$FFFF) for US ROMs.
42. The ROM signature at location \$CFFC and \$CFFD (lo/hi) is \$EA3B.
43. The ROM revision byte at location \$CFFE, has incremented from \$00 to \$01.
44. The ROM checksum byte at location \$CFFF, has changed from \$C3 to \$4C.
45. The Kernel revision byte at location \$FF80 has incremented from \$00 to \$01.

**C/128 Developer
and Documentation Notes**

There were quite a few items that, for one reason or another, I categorized as un-fixable as the fix would compromise compatibility or be too radical given the work-around or relative severity of the problem. They are included here to document them along with any implications, work-arounds, etc.

1. DMA interface. It should also be noted that DMA hardware is unreliable at 2MHz clock speeds and consequently the user must insure 1MHz (SLOW) mode is used before any DMA operations are performed. NMI interrupts will also cause problems, and should be disabled or somehow avoided. RS-232 operations use NMIs; the remote should be XOFFed or the channel disabled before DMA operations are performed.
2. IRQ handler. It is possible for the Kernel IRQ handler to perform a keyscan when the IRQ was not the Kernel's. While the fix is trivial, I did not include it because it might cause problems with existing software which may be taking advantage of the unintentional keyscans.

3. IRQ and NMI handlers. The Kernel forces the system bank into context before taking the RAM indirect vectors to the actual interrupt handler. Much flexibility can be added to the mechanism if the memory bank to be brought into context at interrupt time could be read from a variable instead of a ROM constant. I am reluctant to include this change because the RAM variable would have to be located in a previously 'free' location, which may be used by existing applications.
4. SAVE-to-disk. It is not possible to SAVE the last byte of any memory bank (e.g., RAM at \$FFFF), because the SAVE routine requires you to specify the end of the area to be SAVED as the ending address PLUS ONE (\$FFFF+1 -> \$0000). This is a problem found on all CBM 65xx systems.
5. SAVE-to-cassette. It is not possible to save the last page of any memory bank (e.g., RAM at \$FF00-\$FFFF) to tape. The tape handler hangs with the motor running until the user STOPS it. This is a problem found on all CBM 65xx systems except the Plus-4.
6. SAVE and LOAD. While program SAVES correctly save the 16-bit starting address for future LOADs, the existing formats do not save the memory bank. This cannot be accommodated without the creation of special C128 program headers for disk and tape, which is undesirable and non-trivial.
7. STOP/RESET monitor entry. It is not possible to enter the Monitor directly via the STOP/RESET sequence from BASIC and then eXit back to BASIC without incurring a 'cold' BASIC initialization. The alternative, taking the BASIC 'warm' start route, would result in a system crash if BASIC had not been properly initialized and is therefore not a recommended fix. The work-around, assuming BASIC was running before

STOP/RESET, is for the user to place the value \$C1 into location \$A04 (INITSTATUS) and then eXit.

8. Monitor 'H' (hunt) command. Because the editor performs various translations on data read from the screen, it is not possible to Hunt for certain CBM characters, such as pi and all reverse-field characters.
9. BOX command. BOX, because of the particular algorithm utilized, has a restricted range of -16384 to +16383 (unscaled). The algorithm uses parameters that are twice those given for calculations and divides down the result before plotting. Thus it is possible for very large (unscaled) positive coordinates to result in large negative plots. The work-around is to use SCALEing, user range-checking, or avoid BOX and use either DRAW or CIRCLE commands instead.
10. RDOT, PEN, and RSPPOS functions. These BASIC functions return the current pixel cursor, lightpen and sprite positions, respectively, but the values they return are unSCALed. Correcting this is trivial, but would result in problems for existing applications as well as being incompatible with C64 VSP and the PLUS-4.
11. FNDEF and GRAPHIC modes. After defining a user function, anything that results in program relocation must be avoided, such as GRAPHIC 'n' or GRAPHIC CLR. There is no fix planned. The work-around is a general rule: define GRAPHIC screens first (then SCALE), then define functions.
12. HELP command. HELP does not completely identify two type of syntax errors: 'RUN n' where 'n' is an undefined statement, and 'XXXX n' where 'XXXX' is any BASIC command which expects no argument. In the RUN case, TXTPTR had already been reset, but not OLDLIN, thus the correct line is displayed but without any highlighting. In the other case, because XEQCM exits via CHRGET, TXTPTR is incremented before the error is caught, resulting in part of the error not being highlighted. The fix would be too complex, especially considering the fact that the line containing the error is reported, albeit without highlighting.
13. GETKEY function. In the form 'GETKEY A', this BASIC function should wait until a numeric key is pressed, but certain non-numeric keys are accepted, such as 'E', colon, comma, period, '+', and '-'. The same anomaly occurs with 'GET A' for the same reason, as is a known CBM quirk.
14. PUDEF and PRINT USING commands. There is poor documentation of the fact that USING format fields such as "\$,###.##", the leading '\$' or commas are not interpreted per the PUDEFs as they are considered not part of the numeric field. This is found to occur in all versions of CBM BASIC 3.5 or higher.
15. RENUMBER command. Because of the routine's use of LINNUM to fetch from BASIC text the statement number of an object, it is possible to get a 'syntax error' when none existed within the RENUMBER command line itself. LINNUM itself reports any line numbers it reads that are out of range (>63999). Actually, you could use this to 'protect' a program from RENUMBERing. Also note that RENUMBER can not renumber line ranges. Therefore, LIST and DELETE statements within a program are NOT changed nor will they generate any errors.
16. OUT of MEMORY ERROR. It is possible to hang the system with this error from a running program when there is insufficient memory to contain the string representation of the original

line number where the error occurred. One must STOP/RESTORE the system and type CLR to recover. This problem is found on most CBM 65xx systems.

17. BASIN (\$FFCF) calls return <space><return> to <return> input (i.e., null input line). The culprit is an unnecessary BEQ test in LOOP4, which was left in for compatibility with the C64 and PLUS-4 editors, which behave in a similar manner.
18. MATH package. The binding of operators is such that unary minuses are evaluated after powers. This results in NO error when equations of the form $(-4^{.5})$ are evaluated (square root of a negative number). Of course, the error is given if the sign of the number is known when the power is applied (eg., $X=-4$:PRINT $X^{.5}$). This is a known CBM quirk.
19. BASIC DOS commands, such as DOPEN and APPEND, limit filenames to 16 characters maximum. However, when the name string includes the filetype, such as "LONGLONGLONGLONG,P", BASIC reports a FILENAME TOO LONG error when, in fact, it is valid. This is a problem on all CBM systems > DOS 3.0.
20. DCLOSE accepts both LFN and UNIT parameters simultaneously, which it should not (they should be mutually exclusive). The LFN is always used, and the UNIT ignored, if both are given.
21. AUTO command puts next line number into the KEY buffer. It should probably just print it. This only causes a problem when used with function key strings containing <return>s.
22. INSERT Editor mode is not canceled by specific ESCAPE sequences which move the cursor. For example, <INS><INS><INS> <ESC>K <CRSR><CRSR><CRSR> illustrates that

staying in INSERT mode after moving the cursor to the EOL is undesirable.

23. CIRCLE command in multicolor mode calculates default Y-radius based upon twice the X-radius. This is undesirable, but maintained to preserve compatibility among C64 VSP, PLUS-4, and C128.
24. TAPes written in FAST mode are occasionally hard to read in SLOW mode. While I would not be surprised by this, I could not repeat the problem. The complaint comes from PAL/50Hz environments, but that may be the only place tapes are used! Users should take care to use tapes only in SLOW (1MHz) mode so that the tapes can be read on PETs, 8032s, C64s, etc.
25. VERIFY and DVERIFY will report 'verify error' when, in fact, the programs are identical. This occurs when the LOAded version of the BASIC program has been relocated since it was SAVEd, usually the result of the GRAPHIC command. In such cases, the MSB of line links differ, and (D)VERIFY fails. Try GRAPHIC <n[CLR> as appropriate and try again.

[In a letter dated 6 January 1987, Mr. Bowen has written that there is not yet any information about availability, price, or warranty on the new ROMs. Also, one of the modifications to the 1571 ROM caused other problems, creating another 2-3 week delay in its release. Many thanks to Mr. Bowen, and Commodore, for releasing this information and for allowing us to reprint it. Tim]

Comments on 1541
Directory Expansions

By Robert W. Baker

Several users have been attempting to expand the directory of a normal 1541 diskette. Normally, a 1541 disk can only handle up to 144 files maximum. Since many users have a large number of short files, it would be desirable to allow more than the 144 limit.

Several individuals have been experimenting with expanding directories and reporting their results on various BBS systems. Most have thought it works with no problems, but I would like to point out a warning of possible disk corruption.

It appears that if you do expand the directory beyond track #18, the DOS can correctly find and load or read the added files. However, problems can occur when writing or saving any file to a disk with an expanded directory. Various areas of the directory stand to be corrupted without warning.

After some investigation, I came across the following situation:

When the directory is expanded, the DOS will correctly follow the chaining from directory block to directory block, reading additional blocks or tracks as required. If the file is simply being read or loaded, the correct information is left in the directory buffer area when needed following the filename search. The DOS can then correctly find and use any information required from the directory entry.

When writing or saving a NEW file, however, a different situation arises. The DOS first searches the ENTIRE directory to see if the file already exists on the disk. The DOS saves a pointer that indicates the first available slot where an entry could be added in the directory. This will normally be a previously deleted file or an unused area of the directory.

If the directory has been expanded beyond track #18, the DOS will continue reading sectors or tracks until the end of

the directory has been found. Again, checking for the existing copy of the same file. If the file is not found, the DOS proceeds to open the file by creating the directory entry WHERE THE SAVED POINTER indicates there was an available directory slot found during the directory search.

If the directory has been expanded and the available slot is back on track #18, then the pointer is still pointing to the slot in that directory sector but the actual directory data from that sector is no longer in the directory buffer memory. A new directory sector is now resident, since the DOS had to read the expanded directory blocks. Thus, the new file data is written in the wrong directory block!

It track #18 has been entirely filled with directory entries, the new file will be entered into the expanded directory block. The pointer indicates the correct data in buffer storage and everything will go in the correct place. So the directory expansion routines should work as long as files are never deleted, but are likely to corrupt a directory if there are empty directory slots on track #18.

Thus, I would strongly recommend staying away from expanding the directory of a normal 1541 disk unless you seriously know what you are doing. You stand to lose data if you slip up.

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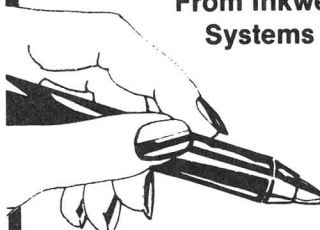
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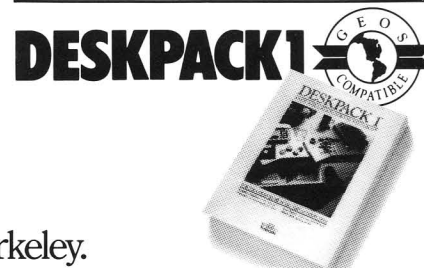
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